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CAOUTCHOUC GUTTA-PERCHA

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LESSONS OF THE EXHIBITION.

THE International Rubber Exhibition, as in a mirror, reflected the crude rubber situation of the world. Some of the lesser producing countries, the Central American, for example, were not in evidence. Nor did Bolivia and Peru embrace the opportunity to impress upon the world their position as producers. But the rest of tropical America, Africa, Asia and Oceanica was abundantly in evidence.

Clean rubber from the great *Hevea* plantations in the middle East is the leaven that is working to produce an equally clean product from the Amazon, from the British, German, Dutch, Belgian, and French rubber producing countries. The success in planting *Hevea* is stimulating a practical exploitation of *Castilloa, Manihot, Landolphia, Funtumia, Sapium* and *Ficus.* The triumph of guayule is leading to experiments with "grass rubbers" and their like. Pontianak extraction has stimulated a general investigation of scores of pseudo gums. All of these and many more are indicated in the thousands of samples of rubber prepared by hundreds of methods unknown a few years ago.

In the many instruments and machines, particularly German, for testing accurately all of the varying qualities of rubber, one notes a distinct industrial advance.

The remarkable progress in the production of crude rubber, and in the ability to classify it with exactness, points not only to a great extension of the business as a whole, but to an early and thorough standardization of the crude material.

A RUBBER EXHIBITION FOR AMERICA.

AGAIN the plan for a rubber exhibition in New York has come to the front. One enthusiastic boomer has already set the time—June, 1912—and the place, the magnificent new Grand Central Palace. Cables have been sent to Europe, but so far there has not been an enthusiastic response.

Another set of hustlers are planning one for 1913—place not yet decided upon.

It goes without saying that sometime, somewhere, New York will one day have a rubber exhibition.

If the right preparations are made, if the Middle East, African and all of tropical America send their best exhibits, if all of the new testing machines and instruments of precision applicable to rubber that Germany, England, France, Belgium and Holland have produced are exhibited, it will be well worth the trouble and expense.

More than this, it would bring to our shores a notable gathering of scientific men, botanists, chemists, physicists, planters and manufacturers, and the educational result could not fail to be very great.

THE AWAKENING IN PARA.

THE great natural riches of the state of Pará have in the past been practically untouched by the Brazilians. It is therefore most gratifying to see indications of a decided change on the part of the state government. One is the visit of Dr. Jacques Huber, of the Musee Goeldii, to London, as delegate to the International Rubber Exposition. His paper, read at one of the conferences, will draw fresh attention to the Amazon countries; while his examination of the products of planted *Hevea,* of rubber planting machinery and methods, will be of great value to the rubber producers of the lower Amazon.

Of greater significance, however, is the presence in the Brazilian exhibits of rubbers other than fine and coarse Pará. There is no reason why certain of the *Sapiums,* of the *mimusops* and of other gum producers which are abundant all through the Amazon country should not be producers for the market.

That the official plans contemplate extensive colonization, means not only the planting of rubber but utilization of any kind that it is profitable to tap. With the assurance of a fair export duty on balata, for example, there is little doubt but "cruisers" from the Guianas and Venezuela would soon locate rich "reefs" and add much to the world's supply of this valuable gum.

FURTHER BRAZILIAN PLANS.

RECOGNIZING the fact that the exceptional conditions now prevailing in the rubber industry of Brazil call for special action, the State of Pará is reported to have lately enacted various laws of a remedial character. The danger to which South American rubber is exposed, from the advent of plantation rubber from the Far East upon the markets of the world, is not a problematical one. Its reality is proved by the stock on hand in Pará, estimated on May 31 at 5,350 tons. The introduction of the Eastern rubber replacing the South American product, is a constantly growing menace to the latter, and has doubtless influenced the decision of the Pará legislature.

The measures passed provide for the issue of a foreign loan upon joint State and Federal responsibility to the amount of $30,000,000 for a period of ten years at not more than 5 per cent. interest. The interest on the loan will be covered by a tax equalling about six cents per pound.

It is contemplated to use the proceeds of the loan for the protection of the rubber industry. The steps contemplated include as a prominent feature the establishment of a bank at Pará, through which advances will be made on land and produce. In the former case the limit is to be 40 per cent. of the value, while loans for the working of plantations are not to exceed one-half of the average annual profit during the preceding four years, and are repayable within eighteen months. The maximum rates to be charged by the bank are to be 10 per cent. on mortgages and 9 per cent. on other business.

Special importance is attached to the starting of establishments for the refining (washing) of crude rubber by the best method to be selected for the purpose. In this way it is contemplated to export only one quality, to be of the best grade possible.

With the view of affording improved facilities of transportation it is announced by the Port of Pará Company that it has decided upon the construction of a fleet of vessels for the Amazon trade. This step, even apart from the others projected, would considerably help to meet the present competition of plantation rubber. This company is American, having been incorporated in 1906 under the laws of Maine. Its head office is at Portland, Maine, and it also has offices in London, Paris and Rio de Janeiro, likewise having Brazilian charters. Its capital is $17,500,000, fully paid up, in addition to bonds equalling $43,000,000. The company obtained a concession for the construction and operation of harbor works at the Port of Pará.

This new legislation, it will be noticed, more or less corresponds with the suggestion of Senhor Passos Miranda, to which the July issue of THE INDIA RUBBER WORLD called attention.

THE MOTOR TRUCK WINS.

THE recent excessively hot weather furnished argument of an irrefutable character in favor of the motor truck, as against the horse-drawn vehicle, for the transportation of freight. Truckmen engaged in business on a large scale, admitted that the substitution of commercial motors for horse trucks, would not only have saved them heavy loss in dead and disabled animals, but the power to move loads of normal magnitude at the ordinary or greater speed, without cruelly overtaxing their patient animal aids, would have immeasurably increased the efficiency of their service and contributed materially to public convenience. Confronted with a death list of about 10,000 horses—2,000 in New York alone—due to heat, besides innumerable prostrations, to say nothing of the reduced efficiency of the commercial transportation service and the suffering caused to draught animals, whereas not a single motor truck was reported as even "affected by the heat," the advisability of replacing the horse by the motor becomes forcibly apparent.

Nor is it only in the summer season that the advantages of the commercial automobile impress themselves on the community. In winter, after a snow-fall, with the horse truck hopelessly "stalled" in spite of the efforts of overstrained teams, or when streets coated with ice, are dangerous or impassable to horses, there is little or no interruption to automobile service.

Other and equally urgent arguments may be advanced in favor of the substitution of motor propelled for horse-drawn vehicles in city streets. Sanitary reasons alone should dictate their preference, especially during the warm months, and a reduction in the equine population of the frequently overcrowded, poorly located and not always sanitary city stables, is equally desirable. Then, again, there is the question of space; approximately three automobile trucks would occupy no more room in the streets, on docks, ferries, etc., than two horse trucks, with much greater carrying capacity; this would mean an increase of about fifty per cent. in the space available for trucks, etc., in the streets, and, according to competent authorities, would materially relieve the existing traffic congestion. The recently expressed determination of several of the steamship companies, to admit automobile trucks to their piers—following the action of the insurance companies in waiving their objection to the presence of gasoline autos on these structures—will in like manner facilitate the handling of freight and relieve the crowded condition of the water-front.

Careful calculations have shown an unquestionable saving in maintenance and operating expense in favor of the motor truck, as compared with one drawn by horses, while with modern improvements in mechanism and construction, the chances of delay or interruption to service has been reduced to a minimum. The latter is, moreover, a most important factor where long hauls are undertaken. Transcontinental trips by motor trucks carrying considerable loads, have been by no means uncommon, and the obstacles the sturdy vehicles have successfully surmounted on these long journeys have fully demonstrated their serviceability.

Another and a very important feature in the advancement of the motor-truck to its present prominent position has been the tire equipment. It has been decided, after careful observation and exhaustive tests, that for vehicles of light or medium weight, the pneumatic tire gives best results, especially following the plan adopted by some of the most successful truck builders in mounting two tires on one wheel, so that in the event of an accident to one tire, the other is there to take up the work. Here again a source of objection to the motor vehicle has been successfully eliminated, and it has been demonstrated that quite large loads can be successfully and cheaply transported on air-filled tires, the speed and efficiency of the vehicle being at the same time materially increased.

The replacement of the horse-drawn by the motor-propelled vehicle, even if gradual, will seriously affect a number of important industries. It is said, also, that the change is not likely to be effected gradually, but that a realization of the advantages with which it is certain to be attended, will result in a general movement in favor of the commercial automobile, and that the transformation will be effected more quickly than is anticipated. It is certain that in some circles—notably among express companies, manufacturers doing their own trucking, farmers, etc.—conditions are ripe for the change, and the movement once fairly inaugurated, is likely to progress with surprising rapidity.

Of special interest in this connection are the reports on horse-drawn vehicles in the United States. According to figures taken partly from statistics and partly from those who are in touch with that trade, there were manufactured in 1910, 1,700,000 horse-drawn vehicles. Of these, were pleasure vehicles, such as runabouts, buggies, and light carriages, 925,000; heavy pleasure vehicles, broughams and coaches, 150,000; business vehicles, such as light express wagons, 125,000; heavy business wagons and farm wagons, 500,000. The proportion of vehicles having solid tires figures out about as follows: Light pleasure vehicles, 60 per cent.; heavy pleasure vehicles, 85 per cent.; business vehicles, 15 per cent.; wagons, practically none. It is well to remember of business vehicles that those equipped with rubber tires are mostly used in cities. There are also very few light pleasure vehicles west of the Mississippi equipped with rubber tires—that is, until one reaches the Pacific coast.

A TIRE MAN GETS THE MILLIONTH PATENT.

AS THE numbers issued by the United States Patent Office have been climbing up the late 900,000's inventors with patents pending and patent lawyers have been anxiously craning their necks to see who would get patent No. 1,000,000. It is a round, full number, pleasant to contemplate and bound to bring the fortunate patentee good luck in the way of abundant free advertising, if in no other way. So, as the number of patents issued approached the magical million mark, everybody has been peering ahead to discover the winner. The Patent Office is not noted for bubbling garrulity, but the fact has been divulged that patent No. 1,000,000, which will be issued about the 10th of August, will go to Mr. Hilton (presumably of

Cleveland, as his lawyers hail from there) for a rubber tire with special features adapting it particularly for motor-car use. Happy Hilton, there's a million in it for him at the very start.

"THE RUBBER BUSINESS AND EXPECTATION OF LIFE."

IT has often been remarked that rubber manufacture must be a fairly healthful occupation because there were so many men well along in years that were still actively employed. So far as we know the life insurance companies have never taken the trade as a whole upon which to base any of their figures. It therefore remains for us to present a table of vital statistics which will be of interest at least to those who have passed the fifty mark.

Taking one hundred officials in rubber concerns in the United States and Canada, who during the past ten years have passed away, the following is found:

Deaths	between	20	and	30	.....	1
"	"	30	"	40	.....	2
"	"	40	"	50	.....	10
"	"	50	"	60	.....	25
"	"	60	"	70	.....	34
"	"	70	"	80	.....	21
"	"	80	"	90	.....	6
"	"	90	"	100	.....	1
						100

A surprisingly high average of life is found, the figures being 65.76.

Pneumonia and heart failure seem to be the diseases that are most common. The months of June and March are the fatal months, while September has the fewest records of death.

The common belief that the period of a man's life that comes between 50 and 57 is most critical would seem not to apply to rubber men, according to these figures, although dangerous periods occur from 53 to 56 and from 63 to 65.

TRADE RELATIONS WITH VENEZUELA.

SO long as this country is importing to the extent of about 200 millions of dollars from South American countries, and is exporting in that direction only about one-half of that amount, there will remain an unfavorable balance of trade, which our manufacturers and exporters are constantly trying to equalize. These general conditions apply even in a higher degree to the case of Venezuela, from which country we imported in 1910 to the extent of $6,701,352, while our exports to that market only represented $2,797,210.

Venezuela returns show total exports from that country for 1910 of about 18 millions of dollars, of which about 6 million dollars' worth came to the country. During the same period the imports of Venezuela represented about 8½ millions of dollars, of which the American share was (as already shown) about 2¾ millions.

Venezuelan exports include:

	To all countries.
Coffee	$8,050,070
Cocoa	3,381,733
Hides	932,745
Balata	2,193,901
Rubber	851,939
Other articles	2,538,529
	$17,948,917

Comparing the figures for total Venezuelan exports of rubber and balata, with the United States returns for the imports of those articles from Venezuela, the following result is shown:

1910.	Balata.	Rubber.
Venezuelan exports	$2,193,901	$851,939
U. S. imports from Venezuela..	35,261	511,057

Thus, while apparently 60 per cent. of Venezuelan rubber comes to this country, only a small quantity of balata from that source finds its way here.

As to cotton goods, the preponderance of England in Venezuelan imports is notable. Out of a total import of $3,756,750 this country only supplied goods to the extent of $289,070, while England secured trade representing $2,367,370.

Perhaps a little encouragement by United States purchasers of Venezuelan balata might through mutual influence reciprocally affect the favor of American cottons in that country. Anyway, the interests of American exporters and importers are more or less in harmony as to trade relations with our nearest South American neighbor.

WITH A BORDER OF TAPPING TOOLS.

A RUBBER planting company asks us to suggest a catch phrase for their letter head that will be appropriate, chaste and to the point. We are of the opinion that catch phrases are overdone and not as effective as they once were. Some new method of attracting attention is required, as, for example, a bit of verse, such as

Little drops of Latex
Gathered in the hand
Make the mighty motor tire
And the rubber band.

British Guiana and India-Rubber

By the Editor of THE INDIA RUBBER WORLD.

THIRD LETTER.

Population of British Guiana.—Coolies.—The "Sea Devil" and the Hoatzin.—Gold and Diamonds.—The "Deadly Climate."—Snake Stories.—Early Plantings of *Hevea*.—Experimental Plantings by the Agricultural Department.—Rainfall.—Shipping Rubber.—Packing Seeds.—The Balata Syndicate.

CONSIDERING its area British Guiana is very sparsely populated. The latest census record is about 300,000 souls, one-third of them East Indian Coolies. There are but two cities of note, Georgetown and New Amsterdam. The country is really new and so full of opportunities that one wonders at the way the world has passed it by. The coolies, who are brought in as laborers on the large estates, are good workers and very tractable and polite. The stranger passing through the coolie quarters of Georgetown is quite likely to be greeted with: "Salaam Papa"—not a claim of blood relationship, but just their deferential way of saying "good day."

Like Northern Brazil, British Guiana, has the jaguar, the tapir and the manatee, it has the great bird eating spiders, its big rivers swarm with fish, its forests with game, its jungles with snakes, great and small. It also has strange creatures of its own. It was on a Guianan river that one night I heard a "sea devil" crash down on the surface of the water, and thereafter listened to tales of its enormous size, of its habit of enwrapping divers in its great side fins and feeding on them as they drowned. Then there is the Hoatzin, earth's only known link between bird and reptile—a bird whose young are hatched out four footed, but who turn into bipeds, their forelegs shedding claws and sprouting feathers as they mature. There are the gold fields, the diamond fields, and the great unexplored reaches of forest and savannah that are full of fascination—a paradise for hunter, botanist, naturalist and yes health seeker. There has been no

"SAPIUM JENMANI" AT RUBBERTON, LOWER BARIMA RIVER.

Their women are slender, black eyed, well mannered and gorgeously dressed. For example, one wore a scarlet hat, pale pink waist, deep pink belt, white skirt, green scarf, brown stockings, black shoes. A "real lady," dressed just like the European as she firmly believed. The other laborers are native and West Indian negroes, and they are a uniformly capable, willing lot of men.

yellow fever since '81 and then it was brought in from another country. There is malaria, but one need not acquire it, if careful, and this I would affirm even to the distinguished lecturer, who addressing a New York audience on Brazil and the Guianas, summarized the latter country thus: "Along here we pass the country known as British Guiana, which has a climate so hot and deadly that no white man can live there." As I pen these lines

in New York the thermometer stands at 104 degs. Fahr., with hundreds of deaths and prostrations. Personally I yearn for the safe warmth, the cool nights and the gentle healthful climate of Guiana.

TAKUTU CREEK.

CLEARING FOR RUBBER PLANTING.

Speaking of snakes there are many in the Guianas and most of the planters can show the visitor some very sizable skins. I could not, however, learn of any white man who had perished from snake bite. The government keeps a careful record of all deaths, even of the negroes who go far into the interior to labor at the gold diggings. In looking over the records for a number of years, I found but one case of death by snake bite. Curiously enough the most frequent cause of death among those men seemed to be "accidental drowning."

To even see a snake one usually has to hunt for it. It is easy to find snake stories, however, and those told by the whites are only a bit less imaginative than those of the blacks. A friend of mine, Wilfred Joubert, who has done the Guianas as thoroughly as any one, lay in his hammock in the bush one night and listened to the following story which is typical. The teller was a big-eyed Guiana negro. His audience a breathless, believing crowd of his own color.

"Yo know Massa Johnson, we a go ride one marnin top he horse en he tenk he go Berbice, but he see one big ting across he path dat he no ken go. He look en he look and he see a one big snake! A true, a snake belly a so big a horse no can leap em, and he sit on he horse all day till 4 o'clock an a snake no pass yet so den he turn back and he get he people for come and look, but wen he get back a snake a gone."

Those who believe that any tree flourishes best in its own home, or at least in a country that has the same sort of climate and soil should approve of British Guiana for the *Hevea Brasiliensis*. It is Northern Brazil over again. Humid, tropical, with a long and short wet season with a coastal soil really brought down by the Amazon with fauna and flora almost identical, if it is not the home of the Pará rubber tree, it certainly is next door to it.

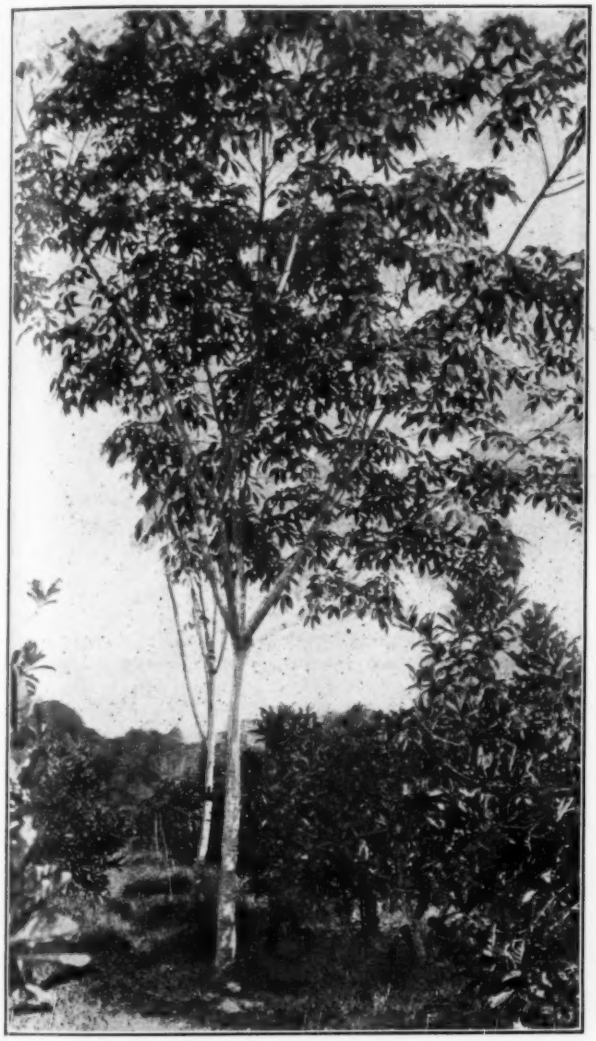
It was fully 16 years ago that the first seeds of *Hevea Brasiliensis* were brought into British Guiana and later plants from the first lot of seeds were sent to different parts of the Colony. The result is that there are a few old trees in existence there. About six years ago the botanic gardens in Georgetown began in earnest to import seeds and up to the present time have

"HEVEA BRASILIENSIS" AT THE EXPERIMENT STATION, ISSORORO, N. W. D. AGE 1½ YEARS.

"HEVEA BRASILIENSIS" AT PLANTATION ANNA REGINA, ESSEQUIBO. AGE 2½ YEARS.

raised and sold to planters nearly 200,000 plants of this species.

In addition to this very important distribution, land has been cleared and planted at the government experiment stations at Christianburg, Bonasika, Onderneemig, Pomeroon and Issororo.



"HEVEA BRASILIENSIS" AT GOVERNMENT INDUSTRIAL SCHOOL FARM, ONDERNEEMING. AGE 4½ YEARS.

These plantings represent several thousand trees, in every variety of soil. A careful record of growth is kept and the future planter will thus have a remarkable fund of exact information to draw from before selecting land and putting in seed.

The Department of Agriculture is nothing if not thorough and it has not only planted Pará rubber at its own stations, but at the stations of the Department of Lands and Mines as well. To-day, therefore, at Turmaturmari, Itaki, Arrawak-Matope, Arakaka and Towakaima, Pará trees are growing and it has been established that the upper reaches of the great rivers and the interior forest lands are well adapted for Pará cultivation.

Planters have also taken, of late, considerable interest in Pará planting. On the sugar estates many experiments have been tried and on the higher reaches the trees are doing very well.

Already one estate on the Demerara river has produced Pará at the rate of 3 lbs. per tree, tapping only three months of the year.

The coagulating method is a compromise between that in use in the Middle East and in Brazil. It consists in coagulating by acetic acid and then smoking, only instead of the Urucuri palm nut they use the fruit of the Cokerite palm.

"CASTILLOA ELASTICA" AT BOTANIC GARDENS.

The department estimates that about 1,000 acres are now planted to *Hevea Brasiliensis* and this area is very rapidly being increased. They estimate also for drained lands, a cost of about

"HEVEA BRASILIENSIS" AT PLANTATION NOITGEDACHT DEMERARA. AGE 11 YEARS. GIRTH 40½ INCHES.

$70 per acre for the first year and thereafter $25 per year for upkeep. On higher land the initial cost is $48 per acre.

The rainfall in the colony is all that could be desired for rubber planting and one can get it in almost any quantity desired and well distributed. It varies from 92 inches on the Essiquibo river to 268 inches in the North West District.

The shipping of rubber from British Guiana is surrounded by a certain amount of red tape that makes some of the new

GORGE BELOW THE 700 FOOT FALL OF KAIETEUR.

TUMATUMARI CATARACT, POTARO RIVER.

arrivals rather restive. The course of procedure is about this. The shipper goes to the Custom House and gets a supervisor to weigh the lot. Receiving a memo of the weight he proceeds to the Lands and Mines office to get permission to release the rubber and also to secure a royalty blank. Then follows a visit to the treasury department to pay the royalty. The receipt for payment is then taken back to the Custom House for endorsement. Then come two shipping bills which must be officially signed. After this is the securing of the consular invoice and the submission of all of the documents of the steamship company.

RAILROAD TO MINES.

DEMERARA ESSEQUIBO RAILWAY.

Then follows the wait until the cargo is discharged before the bill of lading is signed, and then the rush to mail it by the same steamer that carries the rubber. It is true that few errors occur and the duty on rubber is very low, only two cents per pound, but if one official could be empowered to do all of the signing and the steamship companies would unbend a bit it would greatly facilitate matters and be much appreciated by rubber exporters.

Professor Harrison told me of a very amusing instance of planters' generosity in the Middle East. He had sent for some *Hevea* seeds, giving the most minute directions as to their packing and shipment. For example, he specified a parcels post package of eleven pounds, containing 500 seeds not closely packed, with just a little ventilation, etc. The shipper, however, found that the postal cost for 800 seeds would be just the same, so he put in the extra 300, soldered them up tight to prevent "shucking" and sent them along. Of course they fermented and when they were opened drove everybody away by their fearful stench.

I forgot to mention, in writing of the *Sapium Jenmani*, that Professor Harrison in experimenting finds that the latex develops resin when the tree is tapped continuously. The first and second tappings give excellent rubber, the third is slightly sticky, while the fourth and fifth are decidedly resinous.

Referring again to balata, the whole business has been beautifully systematized since the formation in 1910 of the Consolidated Rubber and Balata Estates, Limited. This company acquired 387 balata licenses and has greatly increased the output. There are some half dozen lesser companies operating in balata and about twenty that are really planting Pará rubber, with prospects of a great many more in the near future.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

THE general trade of the country is undoubtedly good and this is testified to by the complaint of shipping firms of a shortage of tonnage. At the time of writing we are in the throes of a seamen's and dock laborers' strike, a very serious matter for many trades, but one that probably does not affect the rubber trade to any material extent. Rubber manufacturers generally report themselves as being busy and are quietly buying their forward deliveries of raw material at the present easy prices. Those who did not pay last summer prices for delivery over this year, are congratulating themselves and chuckling silently over the misfortunes of their competitors, who are using rubber which has cost them 6*s.* or 7*s.* per pound. This fact of course is ignored by those who want a general reduction of the prices of goods to a level based on fine Pará at 3*s.* 10*d.* lb. One notable result of the famine prices of rubber in 1910 has been the increased use of substitutes and reclaimed rubbers. Now that the price of raw rubber has fallen considerably it might be supposed that less of the cheaper materials would be used. This, however, is not so and of course this is a great factor in preventing any important rise in the raw material. Manufacturers watch the returns from the plantations pretty closely and the great increase in this year's output over 1910 and 1909 in the case of the more important companies and they argue that unless markets are manipulated there is no need for higher prices.

TRADE CONDITIONS.

Chairmen of plantation companies and others who have to make complimentary speeches about rubber in public are still dwelling strongly on the rubber pavement era, which they say is impending. I asked a prominent manufacturer the other day what he thought of this, and his opinion was that Pará rubber will have to fall as low as 1*s.* 6*d.* or 2*s.* per lb. before the employment of rubber pavement on a really large scale occurs.

It is rather an interesting point as to how much of the raw rubber used comes back to the factories as waste or reclaimed. An authority tells me it is 50 per cent. I wonder if this figure finds general corroboration.

THE Mining Exhibition held in Manchester during May was interesting from the point of view of this journal, as showing the increased utilization of rubber in and about the modern collieries. Of course the application of electricity for pumping, hauling and winding, is by no means a novelty, but it is only in quite recent years that it may be said to have passed the experimental stage and to have had its advantages against steam fully established. Coal cutting machinery is now being increasingly employed, though it must be confessed that there is considerable prejudice against it when worked electrically, on account of its alleged liability to cause explosions in fiery mines by reason of sparking. Trailing cables of special make, for such machines, were on view at the exhibition, prominent among them being those of the St. Helens Cable & Rubber Co. For this class of work The W. T. Glover & Co. have also brought out a special cable, designed to obviate any risk of danger if accidentally damaged. Of late years, as the result of several calamitous explosions, a considerable amount of attention has been given to life-saving appliances, both at home and abroad. In a general way, one may say that the miner's outfit somewhat resembles that of a diver, though a waterproof costume is not required. A good deal of rubber, however, is used in the form of tubing, in connection with the breathing apparatus in the helmet, and as the number of rescue stations is to be largely increased, rubber tubing for this purpose will be in correspondingly increased demand. Shot firing by electricity is now very largely employed in shaft sinking, and the flexible cables used were prominently on view. Of course there is no direct ratio between the increased use of electricity in mines and the amount of rubber used, because fiber and bitumen insulated cables are employed to a considerable extent for main cables in the shaft. For other applications, however, some of which have been mentioned, the rubber cable reigns supreme and the demand is bound to increase. Some firms who specialize in packings had stands at the exhibition. Klingerite is now supplied from their London factory and the firm report increased sales, though they have to meet close competition which has sprung up in recent years.

COAL MINING AND RUBBER REQUIREMENTS.

IN these notes it is not intended to deal systematically with the exhibition or the conferences. This will be done in other columns by another pen, though as the material available for notice is so large and varied, I may be permitted to say a few words in addition on my own account. The exhibition was certainly a very comprehensive one and hardly anything of importance, from the tree to the finished goods, was lacking. Although British rubber manufacturers were more strongly in evidence than was the case in 1908, yet the displays they made individually could not compare, as regards space occupied or general attractiveness, with those of the German manufacturers. Of course it may be that the leading British firms do not require any such advertisement, though it was noticeable that the large German exhibitors, such as the Harburg Vienna Co., are by no means unknown to British markets, having done business through their London establishment for many years. In saying this about the manufactured goods exhibits, I am merely dealing with the facts. I am not at all sure that it would have added to the attractiveness or the utility of the exhibition to have had serried ranks of British manufacturers showing macintoshes, garden hose, etc., on the lines of the ordinary shop window. Except to a few business men who might wish to know what their competitors were doing, such exhibits if at all numerous, would have a tendency to lower the Rubber Exhibition to a level with the various trade exhibitions which are held annually in the Agricultural Hall and which have no higher aims than the desire of individual exhibitors to increase their respective business. Of course I do not suggest that the exhibitors in the Rubber Exhibition were there for altruistic motives or were without thought of ultimate benefits to be derived, but compared with the ordinary trade exhibition there was far more information to be obtained by the technical visitor as regards the details of novel machinery and processes.

THE INTERNATIONAL RUBBER EXHIBITION.

THE working rubber factory of the Continental Rubber Co. to demonstrate the properties of guayule rubber proved not only a great attraction to the public behind the chains, but also of great interest to the technical men of various nationalities who were invited to examine every detail of the plant and the manipulation of the rubber. Such an exhibit must naturally entail considerable expense, but Mr. Van der Linde, who had charge of it, told me that he was more than satisfied with the results. Another prominent working exhibit was the Universal washer of Messrs. Werner, Pfleiderer & Perkins. This was operated in a building immediately contiguous to the exhibition demonstrations being given at intervals to those specially interested. Other modern washing machines which claim

INSTRUCTIVE EXHIBITS.

to be superior to Pfleiderer's were not in evidence. Perhaps the best shows of modern rubber machinery were made by David Bridge & Co., of Castleton, near Manchester, and Francis Shaw & Co., of Manchester, and I was specially interested in the plant for making plantation rubber shown by the latter firm. Among other machinery exhibitors were Messrs. A. Ollier & Cie., of Clermont-Ferrand, whose specialties in rubber machinery are being introduced into England by Mons. Vincent, who is the patentee. Among their specialties are the vertical spreader adopted by the Helsby Cable works and also a rapid high temperature vulcanizing press for tires somewhat on the lines of the Doughty machine, the patent for which was, until it ran out last year, the property of the Dunlop Rubber Co.

The raw rubber exhibits from the principal producing centres were on the same imposing scale as in 1908 without any particular novelties being on view. In manufactured goods the Premier Reforming Co. and the Millwall Rubber Co. were new comers with a variety of re-formed rubber goods.

With regard to the attendance of the public I should think this must be considered unsatisfactory; at no time did I notice any semblance of a crowd and at times the hall was practically empty. A year ago, in the boom times, all and sundry were talking rubber, which is by no means the case at the present time. The disappointed holders of 2*s.* shares in various wildcat companies were largely in evidence and took every opportunity of getting opinions from exhibitors as to the possibilities of their holdings. I need hardly say that the illness which prevented the editor of the INDIA RUBBER WORLD from coming to London was sincerely deplored by numbers of visitors from home and abroad who had anticipated the renewal of an acquaintance made in former years.

The conferences which were held in the second week of the exhibition must be considered quite successful. They were well attended and it was only the time limit which prevented the discussions on many papers being prolonged. Considering the many attractions in London during the week and the tropical weather that prevailed it says a good deal for the interest in the conferences, that the attendance, both morning and afternoon, were so satisfactory. The arrangements also were much more satisfactory than in 1908, the papers to be used being announced in good time before the sittings. In the short space at disposal. I shall not attempt even a summary of the proceedings, but merely make casual reference to one or two points. Dr. Huber, in a lengthy paper on the wild rubber reserves of the Amazon, referred to the various species of *Hevea*, saying that the southerly part of the Amazon basin contained most of the true *H. Braziliensis* trees, while the northerly regions contained mostly the other *heveas* which gave a weaker rubber. The large area of untapped trees was emphasized. He suggested with regard to the deficiency in tensile strength of Eastern plantation rubber compared with Brazilian fine, that the seeds had been mostly obtained from the regions where the lower quality *heveas* abounded, a remark which was evidently not to the mind of many planters present. The point seems an important one and doubtless more will be heard of it. In the discussion Mr. Terry and others referred to the use of the term "reserves" and inquired when there was a prospect of their realization, the reply given at some length indicating that ten years might have to elapse before the transport facilities would be such as to allow of any very large increase of production from the virtually unexploited regions. In the course of the discussion Dr. Esch referred to the cut sheet manufacture in Germany, where he said that although plantation had been used a year or two ago and found quite satisfactory it had recently proved unsatisfactory. Dr. Stevens said that he had recently seen cut sheet which had been made by an English rubber works from plantation rubber and it was quite first class. Mr. Terry said that other manufacturers might not agree as to the quality of the cut sheet Dr. Stevens referred to and said that really hardly any progress had been made in using plantation rubber for this purpose since the last exhibition. The manufacturers had no confidence that they could go into the market and buy 10 or 20 tons of plantation of absolutely uniform quality. They could do this in the case of Brazilian fine and have no anxiety whatever as to the quality of the cut sheet. There seemed to be great ambition in the past of Eastern planters to cut out Brazil in this particular market, but looking at the whole of the circumstances he doubted whether it was really worth while troubling to enter into the competition.

The thorny question of the utility of the viscosity test for raw rubber was debated at some length when Dr. Schidrowitz read a paper on the subject. To judge by the tone of the discussion the doctors seem to differ a good deal and it is evidently not time yet for every rubber plantation or factory to buy the necessary apparatus as a requisite part of the laboratory equipment.

MANCHESTER TRADE

The strike of dockers and carters in the first week of July in Manchester proved a serious matter for local trade. Owing to the riots large numbers of extra police and military were brought to the city. One of the immediate consequences was the closing of many factories owing to inability to obtain coal. Important rubber works were among those affected and it is unnecessary to dwell upon the great inconvenience which has been caused to business.

The strike at the Openshaw and Droylsden works of the Gorton Rubber Co. has been settled, concessions having been made on each side. One of the subjects in dispute was the desire of the management to get each worker to sign a form agreeing to be searched when leaving the works. The company have had to prosecute on several occasions in cases of pilfering and they felt it incumbent on them to take extreme measures.

Col. R. K. Birley, C. B. V. D., of Messrs. Chas. Macintosh & Co., has for the second time been elected chairman of the India Rubber Manufacturers Association. He is also chairman of the Beaufort Borneo Rubber Co.

KINDLY EXPRESSIONS FROM LONDON.

Says *The Financier*, London, in an article describing the International Rubber Exhibition:

"A matter for real regret is the fact that we shall not have among us the editor of the INDIA RUBBER WORLD, of New York. Mr Pearson is suffering from an affection of the eyes, the aftermath of fever contracted when exploring the rubber resources of the Guianas on behalf of his journal. Mr. Pearson's absence from the conference of specially-appointed delegates from all the world's rubber centres who are to meet and discuss matters of import to the industry during the run of the exhibition will be the more widely regretted by those who remember the tower of strength he proved himself on the side of common sense at the 1908 conference, held in connection with the first International Exhibition at Olympia. We had been anticipating with no small delight his views on 'synthetic' rubber, and as among the exhibits at the forthcoming exhibition will be demonstrations of one of these processes, a text to hand would have been available for the editor of the INDIA RUBBER WORLD. As it is, however, we have no doubt that the 'synthetic' rubber exhibitor will receive from other recognized experts fortunate enough to witness his demonstrations all the attention and criticism which he courts."

(The affection of the eyes mentioned above is fast disappearing. Except in strong sunlight the editorial optics are again fit for duty. The cause of the trouble was probably poisoning from "Manchaneel" latex.—The editor.)

A valuable deposit of asbestos is reported from Las Vegas, New Mexico. It is of the chrysolite variety, and is said to be accessible in large volume.

Some Rubber Interests in Europe.

GERMANY.

MITTELDEUTSCHE GUMMIWAARENFABRIK, VORM LOUIS PETER. The last meeting of the directors of the company, which lasted, with a noon recess, from 9 o'clock in the morning until 10 o'clock at night, and wound up with the resignation of the entire board, with the exception of Councellor Peter and his legal advisor, was decidedly interesting. Commercial Councillor Peter was accused of making unauthorized written statements, of revealing to the press important company secrets, and of meddling with the manufacturing operations. The half yearly balance of March 31 showed a loss of several hundred thousand dollars and a more unfavorable result of the business of the current half-year, ending September 30, was predicted, than for the preceding year. Before adjournment the directors summoned an extraordinary general meeting to convene on July 31. The above company has a producing rubber plantation in Sumatra.

The Gummi Industrie Hugo Thele, Niedersachsen, of Nienberg, is terminated by the expiration of the firm agreement.

Commercial Councillor Peter, head of the Mitteldeutsche Gummifabrik, vorm. Louis Peter, is reported as having met with a serious accident. While driving, the carriage horses became unmanageable and ran away in the direction of a precipice. Recognizing his danger, Mr. Peter jumped from the carriage, sustaining painful but not dangerous injuries.

Gummiwerke Elbe, Hamburg, reports for 1910 that while business during the first nine months was good, for the last three months it was decidedly bad, which, with the fact that the company had stocked up with rubber at high prices and lost heavily on the decline, causes the directors to recommend that the profit for the year, of 81,964 marks ($19,507) be applied exclusively to writing off and reserve purposes. It was also decided to increase the capital by the issue of preference shares to the value of 750,000 marks ($178,500). Of this sum a syndicate had agreed to take 500,000 marks at par, the remainder being in like manner provided for.

A LEADING GERMAN ASBESTOS AND RUBBER MANUFACTURER.

The founder and active head of the firm Asbest und Gummiwerke, Alfred Calmon, is so well known in the United States and Canada that a sketch of his industrial accomplishments is sure to be of interest.

The firm of Alfred Calmon was registered in the Hamburg Commercial Register on the twelfth of January, 1886. Its operations at first included the manufacture and sale of steam packings and mechanical rubber goods, with many asbestos and rubber specialties.

The business rapidly developed and in 1890 they became interested in the asbestos works of Otto Köhsel & Sohn, in Hanover, and the steam packing factory was transferred to that city. On the 27th of December, 1893, the Asbest-und Gummiwerke Alfred Calmon G. m. b. H. was established with a capital of $128,520 The founders of the firm were Alfred Calmon and the Allgemeine Elecktrizitäts Gesellschaft, Berlin. The new company took over the factory and business of the firm of Otto Köhsel & Sohn, and rented the property belonging to the Allgemeine Elektrizitäts Gesellschaft, in Berlin.

In 1896 the business was turned into a public limited company with a capital of $357,000. The further rapid developments are demonstrated by the following increases in the capital of the company, viz:

1897 to $595,000; 1899 to $714,000, and then to $1,071,000; 1906 to $1,428,000.

The rubber business developed to such an extent as to lead to the erection of a rubber factory in 1899, the manufacture of rubber shoes being added and later cycle and automobile tires.

The asbestos factory, situated in Berlin, occupies an area of about 150,000 square feet, and the rubber factory takes up about 410,000 square feet.

The company has many branches and is also interested in several other concerns, and trades in all parts of the world.

It is also said that the Calmon interests own and control large asbestos mines both in Canada and in Russia.

Mr. Calmon's life has been one of industry, of extraordinary energy coupled with clever understanding and keen foresight. He

ALFRED CALMON.

was one of the pioneers of the German asbestos industry. The field of operations afforded in asbestos-spinning, weaving and millboard manufacturing was not enough so he added rubber lines and today his company is one of the great German producers.

GENERAL DIRECTOR LOUIS HOFF HONORED.

GENERAL Director Louis Hoff, of the important firm of Vereinigte Gummiwaaren Fabriken, Harburg-Wien, Harburg-on-the-Elbe, Germany, has been appointed Royal Prussian Commercial Counsellor, which is a very distinguished honor. Mr. Hoff has been with the Harburg company since 1877 when he came with it as the representative of the works for Paris. Upon the death of General Director Gerig he was appointed Commercial Director and acted in conjunction with the late Commercial Counsellor Karl Maret. Upon the death of Mr. Maret he became sole head of the great company.

Mr. Hoff has taken a vital interest in the city of Harburg both in the building up of the rubber industry and the creation of galolith. He also began a pension fund among the employees, the capital of which is now $325,000. Of the Central Association of German Rubber Goods Factories he has for many years been president, and a very popular and capable official he has proved himself. He is also a member of the consulting board of the Imperial Statistical Office, a member of the local Chamber of Commerce and of the committee of the Commercial Diet. This last honor was conferred upon him on the occasion of the celebration of the Fiftieth Anniversary of the city of Heidelberg.

Mr. Hoff is well known in industrial circles all over Europe and has many friends in the United States.

SWEDEN.

HELSINGBORGS Gummifabriks Aktiebolag has set aside 10,000 crowns ($2,680) for the establishment and maintenance of a day-nursery for the infants of women working in their factory, and for the pension and benevolence fund, 2,000 crowns ($536).

GREAT BRITAIN.

So much attention was recently bestowed by the public on the new Navy airship that it may be of interest to note that in the construction of the gas bags, the famous "North British" fabric, manufactured by The North British Rubber Co., Limited, Castle Mills, Edinburgh, Scotland, was used.

The directors of Harrisons & Crosfield, Limited, have declared a dividend on the cumulative preference shares at the rate of 5½ per cent. per annum for the three months ending July 15.

Much is claimed for Pfleumatic, a filling for tires, that takes the place of air and is asserted to insure total immunity from tire troubles.

REFORMING RUBBER IN GREAT BRITAIN.

The first essay in re-forming rubber has been made, in London, extending over a period of seventeen months, in the new works of the Premier Re-Forming Co., Ltd., a subsidiary company of the Endurite Manufacturing Company of London. The Endurite Company owns the German patent for re-forming old waste rubber. To make this matter quite clear, there is a French patent for a similar process which is being worked in London by another company. Further there are several English companies re-forming rubber waste under English patents.

The Premier Re-Forming Company is the strongest of the six English companies. Their chairman presented his report to the shareholders at the ordinary general meeting held in London on June 14th. Something like $75,000 have already been spent on machinery installation, as against earnings $2,885 gross profit, the company having operated about eighteen months. Re-forming already has absorbed about $167,525 of English capital. The chairman stated that the capacity of the Premier company's new works is equal to a production of 10 tons or even 15 tons per week.

THREE NYASALAND RUBBER PATENTS.

THE registration of three interesting rubber patents has been recorded by the Nyasaland Government Gazette.

One in the name of Leopold Valour is for improvements in machines for separating caoutchouc from the bark of rubber-yielding plants and for similar purposes.

A patent application has been accepted from Harold Theodore Grannele van der Linde, for a method of extracting particles of rubber from substances with which it is associated, while another has been received from William Appleton Lawrence for process and apparatus for extracting rubber or rubber-like substances from its vegetable sources.

A LARGE VACUUM DRYER DRUM.

THE Buffalo Foundry & Machine Co. recently cast an exceptionally large drum for a Rotary Vacuum Dryer. It was 12 feet long and 5 feet in diameter. The drums are generally made of dense air furnace iron, but in this case it was necessary to use a high quality bronze, owing to the fact that the extract to be dried would become discolored if it came in contact with iron.

It required 16,000 pounds of metal to pour the casting and on account of this large quantity, it was necessary to melt the metal in a 48-inch cupola.

Work is being actively pushed on the new building in course of erection for the Stoughton Rubber Co. at Stoughton, Mass. The concrete foundations are complete, and a large gang of mixers and workers are busy raising the walls.

THE USEFUL PONCHO.

THE use of the poncho, for some reason, seems to be almost wholly confined to those who live in the tropics or sub-tropics. Possibly this is due to its usefulness when one rides on horseback. It is, however, one of the simplest and best of

SQUARE PONCHO.

rain shedders. For automobilists it is ideal, while for those who do much walking in the rain, it is umbrella and coat combined.

American soldiers in the Philippines have found that a part, indeed about half, of their duty when out on a "hike" consists of crossing streams and keeping their accoutrements dry. They have, therefore, learned to make rubber boats out of ponchos.

PONCHO BOAT READY FOR LAUNCHING.

The illustration shows a boat, made of one rubber poncho, two rifles, two sabers, and straps, two shelter tent poles and their straps

WHY NOT TAP FOR CAUCHO?

THE sentiment in the rubber producing regions of Brazil today is more favorable than ever before toward planting, colonization, or any kind of procedure that shall assure continued supremacy in crude rubber. Perhaps, therefore, it would be wise to start with caucho. There are great areas in which the *Castilloa Ulei* grows that are still untouched. The present practice of cutting the tree down to get the rubber does not seem necessary, no matter what the claims of the gatherers may be. According to their tales, new trees grow from the stumps and are ready for cutting in seven years. Suppose that be true (although seventeen years would seem more reasonable), would that be as good as an annual tapping? On the other hand, if cutting the tree down is better policy, why should not planted *Castilloas* be cut down every few years and their rubber extracted all at once.

TAPPING BASE OF CAUCHO TREE BEFORE FELLING.
(Copyrighted by Algot Lange.)

It is wholly within the bounds of reason that a caucho expedition, outfitted with proper tapping tools, could get as much rubber and repeat the process on the same trees, at least once a year and do it indefinitely. If this be true it would mean seven times as much caucho. It is worth considering and experimenting with.

CAUCHO TREE FELLED FOR THROUGH BLEEDING.
(Copyrighted by Algot Lange.)

Progress of Rubber Planting.

THE GENERAL RUBBER CO. IN SUMATRA.

THE General Rubber Company, New York, has completed its negotiations for exceedingly large land holdings in Sumatra. It has taken over the properties of the New Asahan Tobacco Co., in which there are 70,000 acres of land, most of which is suitable for *Hevea* culture. The ground is most of it already cleared, and near the rivers thoroughly drained. There is plenty of labor available, and it is planned to have 20,000 acres planted to rubber before 1912. After that the area will be continuously extended year by year. Mr. Davis, Eastern representative, is on the ground, and has for adviser Dr. W. J. Gallagher. Before taking over the New Asahan estates the company secured two concessions for the adjoining lands, one of 10,000 acres, the other 40,000 acres, making a total of 120,000 acres.

The plantation is situated some 12 miles from the seacoast and is not far from Medan. Tanjon balie is the port nearest to the estates. The New Asahan Tobacco Co. produced nearly 5 per cent. of the total tobacco crop of the island of Sumatra. In clearing, draining, in establishing administration buildings, laborers' houses and coolie lines, great sums were expended. There are more than 100 miles of good roads, while the agricultural drains cost more than $1,000,000.

While the General Rubber Co. are at present the owners, it is said that the planting will be conducted by a subsidiary corporation known as the Holland-American Rubber Planting Co.

Speaking of the project, the *Times*, of Ceylon, says: "It is a bold enterprise, and, though the opening of such an extensive area may disturb present estate owners, what will strike most people, no doubt, is its significance as an indication of confidence in the future of plantation rubber, and more particularly of confidence in the location of the great industry in the Middle East. The American company took every care to inquire into the possibilities of planting in Brazil before finally deciding that the Middle East offered superior advantages in the matter of labor supply and transport."

That there is much rubber planting interest in Sumatra has long been known.

During the first six months of 1910 there were formed in Sumatra companies interested in rubber culture: 11 Dutch, capital $4,940,000; 17 British, capital $10,224,000; 1 Belgian, capital $700,000; 1 French, capital $240,000; 1 Franco-British, capital $300,000. There are at present about 100 estates growing rubber in the island.

So little is known of Sumatra in industrial circles that a brief story of the island that has attracted the attention of the officials of the United States Rubber Co. should be apropos.

Located south and west of the Malay Peninsula, between 5° 40′ N. and 5° 59′ S. and 95° 16′ and 106° 3′ E., Sumatra, next to Borneo, is the largest of the great Sunda group of the East India Islands. It is separated from the Malay Peninsula by the Malacca Strait and from Java by the Sunda Strait, and has an area with the adjacent islands, excepting Banka and Billiton, of 178,538 square miles. Of volcanic formation, the island is traversed from end to end, on the south side, by a range of mountains, which includes several recently active, and numerous extinct volcanoes.

The first authentic record of the island was made by the Portuguese, Siguiera, in 1599, although Marco Polo had previously visited it on his way to the East. In 1599 the Dutch established themselves there, and in 1698 the English founded a settlement at Bencoellen, which they exchanged in 1824 for Dutch holdings in India. At present, about two-thirds of the island is under Dutch government and is divided into seven residencies: Padang, Kota Radja, Bencoellen, Telok Betong, Siboga and Medan. There are also a number of semi-independent states, including the kingdom of Acheon, the Battah country, the kingdoms of Siak, Djanebra, Indragari and Kampan, which are under Dutch control, with a few tributary principalities and protectorates. The population of Sumatra, according to the latest computation, is about 5,500,000, including about 92,000 Chinese, a little over 5,000 Europeans, 2,478 Arabs and 7,133 foreigners, the remainder being natives. The most populous settlements are on the west coast, where Padang, the capital of this section, had a population of 35,158 inhabitants at the last enumeration.

Lying immediately under the equator, which crosses the island diagonally at about its center, the range of temperature is high, but the climate is fairly healthy; the rainfall, largely tropical in character and varying with the locality and altitude, ranges from 139 to 78.7 inches per annum.

Nine-tenths of the native population of Sumatra is engaged in agricultural pursuits, the remainder being occupied in cattle raising, fishing, navigation and in collecting the products of the forests which cover the greater portion of the island, the heavy timber extending down to the coast line. Included in the indigenous growths is the *Dichopsis gutta*, which yields gutta percha.

Some rubber is included in the products exported from the island, which include the much prized Sumatra tobacco, some coffee, spices, gums and other forest products. The laborers employed in agriculture and on the plantations consist almost entirely of Chinese coolies, with a few Malays.

TO PLANT RUBBER IN BRITISH GUIANA.

THE Ithaca Development Co. has been organized with a total capital stock of $500,000 in 50,000 shares of $10 each, in addition to $150,000 of 6 per cent. ten-year convertible bonds. It plans the development of 300 acres a year of a rubber plantation of 1,500 acres and a subsequent extension to 3,000 acres. The property is on the Essequibo River, about five hours by steamer from Georgetown. There is included in the property a granite quarry, directly on the water front and now in operation; a quantity of valuable hardwood timber; the burning of Barbados lime, using the wood obtained in clearing the land; and finally the interplanting of the rubber trees with cassava.

Of the $500,000 capital stock $50,000 is given for the property and as part payment for the services of Mr. F. Harvey, who is to remain with the company for five years, in charge of the quarry and limestone business and as assistant superintendent of the plantation. For the property there will be given the further sum of $50,000 in cash, which sum includes expenses of organizing and incorporation both in the United States and in Demerara.

It is proposed to sell the $150,000 of convertible bonds at par.

According to the calculations presented the company expect to pay 6 per cent. on the convertible bonds for the first five years, and in addition 6 per cent. on the issued stock in the second to fifth year, and in the sixth year pay a dividend of 20 per cent. on the entire $500,000 of stock, rising to 90 per cent. in the fourteenth year. The purchaser of the bond would therefore, it is estimated, get 6 per cent. on his money for the first five years and then convert his bond into a stock which will yield him an income increasing from 20 per cent. to 90 per cent. The calculations are based on the sale of the rubber at 75 cents per pound and on a cost of 25 cents per pound after the first year of tapping.

FINE SAPIUM GROWTH.

Mr. Quincy Tucker, who is managing the Boston Rubber Estates in British Guiana, sends us a photograph of *Sapium*

Sapium Jenmani 1 Year and 9 Months Old.

Jenmani, one year and nine months old. This was planted by a previous tenant and while the growth is remarkable Mr. Tucker is very wisely interplanting with *Hevea Brasilunsis*.

COMPARISON OF CEYLON AND MALAYA RUBBER PROSPECTS.

Looking at the matter from an investor's point of view, Mr. R. E. Stephens, a retired London merchant (according to the Ceylon *Observer*) when visiting Colombo, expressed the opinion that the prospects of Federated Malay Companies were better than those of Ceylon corporations. This he attributed to climatic conditions and to the flow of latex in Ceylon not being so good, although the trees are large and the growth good. At the same time he considered the management to be much better in Ceylon.

He had recently transferred his holdings in Ceylon shares to those of the Federated Malay States companies.

MALACCA'S PROGRESS.

According to the official report of the Malacca administration, the year 1910 was one of marked prosperity; the revenue being equal to about $700,000 (gold) or nearly double that for 1909. Land premiums amounted to nearly $60,000 (gold), or more than the combined premiums of the three previous years.

The rubber exported represented nearly $1,500,000 (gold) against $400,000. Over 35 companies are working, with an aggregate capital of more than $7,500,000 (gold).

TWO NEW CEYLON LATEX PATENTS.

According to the Ceylon *Gazette*, the specification has been accepted of a patent granted to Mr. William Francis Barnes for an appliance to hold cups used for the collection of latex from rubber trees when not in use. This device is a combination of a clip for holding an empty cup and a tablet for indicating the number of the tree to which clip and tablet are affixed.

In respect to an invention by Mr. Henry Erskine Watt, of Ederapolla, Yatiyantota, Ceylon, a patent specification has been accepted for a tool intended to cut a grooved channel in the bark of a tree, by means of two curved and hooked cutting blades, hooked to the desired curve of the channel to be cut. The cutting is effected by pushing or pulling and from left to right or from right to left.

SEVENTY THOUSAND POUNDS OF RUBBER BURNED.

Penang advices state that through a fire which occurred on May 31, at the drying shed of the Gedong Rubber Estate, the building and the 70,000 lbs. of rubber it contained, were totally destroyed. The losses are understood to be covered by insurance.

PLANTATION NOTES.

Scottish-Malay Rubber Co. reports 31,002 pounds of dry rubber collected for 1910, against an estimated yield of 25,000 pounds. The net price received was 5*s.* 11/66*d.* per pound, the profit for the year to December 31, 1910, being stated at £5,368.79 ($26,125). The company acquired 170 acres of additional land during the past year, making a total of 2,440 acres. The company reports 32,023 pounds of dry rubber harvested for the six months ending June 30, 1911, compared with 8,476 pounds for the same period in 1910.

Vallambrosa Rubber Co., Limited, reports 91,300 pounds of rubber harvested for the three months ending June 30, 1911, compared with 92,500 pounds for the same period in 1910. At their meeting, held June 30, 1911, the directors resolved to carry £15,000 ($72,997) to a reserve fund, available for development expenditure, and to recommend to the shareholders a final dividend of 2 shillings per share, making 175 per cent. for the year ended March 31, 1911.

The United Serdang (Sumatra) Rubber Plantations, Limited, harvested on its estates for the six months ended May 31, 1911, approximately 157,683 pounds of rubber, of which 115,089 pounds was reported sold at a gross average of 5*s.* 4¼*d.* per pound.

The Pataling Rubber Estates on June 21 declared a first interim dividend of 50 per cent. in respect of the financial year ending December 31, 1911.

Bukit Rajah Rubber Co., Limited, in its annual report for the year ended March 31, 1911, shows a rubber crop for the year 1910-11 of 437,997 pounds, for which a gross price was obtained of 6*s.* 0. 29*d.* in London. For the current year the manager estimates a crop of 550,000 pounds. It was proposed to pay a final dividend of 70 per cent. on the ordinary shares, making 150 per cent. for the year.

Bambrakelly (Ceylon) Tea and Rubber Co. for the year ended March 31, 1911, reported a crop of 16,540 pounds of rubber, the cost of production of which was 2*s.* 8½*d.* per pound, and the net average price realized 5*s.* per pound. The estimate for the current year is 40,250 pounds of rubber.

The Telok Dalam Co., Limited, of Antwerp, Belgium, has a plantation at Asahan, Sumatra, of 5,870 acres, of which 1,069 acres are planted with trees 4 to 8 years old, and 948 acres were planted in 1910. The first year 14,733.3 pounds of rubber was collected.

Sungi Dangar (Malay) Rubber Company. June 14. Capital £70,000 ($340,655), to carry on business as rubber planters and manufacturers of rubber, gutta percha, gums, etc., and to adopt an agreement with the Pioneer Rubber and Oil Syndicates, Limited. First directors: C. H. Meares, R. W. Harrison, C. Fetherstonehaugh, C. Henley and K. Stevens.

Kuala Selangor Rubber Co., Limited, at the fifth annual meeting of shareholders, adopted a report declaring a final dividend of 30 per cent. for the year ended December 31, 1910. The rubber collected for the year was 40,000 pounds, against an estimate of 19,800 pounds. The estimate for the current year is 195,000 pounds.

A COAGULATOR FROM TOBAGO.

TOBAGO is a beautiful tropical island close to Trinidad, British West Indies. The planters there have gone in for *Castilloa* very extensively. They have also evolved their own methods of tapping and coagulating. The illustration is from a photograph of

SMITH'S CENTRIFUGAL COAGULATOR.

a coagulator, invented by one of the planters, Mr. H. S. Smith. It is in brief a centrifugal, the bowl of which is fitted with a canvas screen. This catches and holds the coagulated rubber and finally delivers it in the form of a clean sheet. The process has a variety of simple and ingenious adjuncts that fit it for the purpose to which it is successfully put.

RUBBER INTENTIONS AT PARA.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

SIR.—I hasten to explain in reference to the article, "Brazil and Valorization," in your issue of June 1, that what the Brazilian States are contemplating *is not to wash all rubber*, but to wash all the scrap, sernamby and other low grades which are now shipped in an unpresentable and inconvenient state both as to bulk and appearance. But even supposing it was contemplated to wash all rubbers, there is evidence of the most valuable class that rubbers improve after being washed and cured if kept in the dark. It might also be mentioned that those who are in contact with Their Excellencies, the Governors of both the States of Para and Manaos, know that neither of them desire to assist, nor will in any way act with the avowed purpose of raising the prices of rubber to exorbitant figures. What they are very anxious to obtain is a reasonable level for the rubber market, and the stability of prices, absolutely in accordance with the laws of supply and demand. In this they have the concurrence of every intelligent manufacturer, and the producers would hail with delight the consummation of that desideratum.

As a preliminary measure, the laws referred to have been passed, but this does not mean that the administration will act rashly or in defiance of common sense and commercial principles. The writer, for one, has noticed that Brazil, on account of its distance from the markets where its products are sold, is always liable to be misunderstood. Whilst every publisher is desirous of venturing an opinion upon Brazilian matters, and rubber speculators in shares and raw material are always influencing the public to think with them scarcely one in one hundred times do they do Brazil justice at the beginning of any discussion as to its commercial development and intentions. And some who may have retracted, honorably, some of their unjust commentaries, very often let matters slide and never try to undo wrong impressions created by their hasty conclusions.

Wrongly or rightly, the valorization of coffee is an accomplished fact, and not such a commercial heresy and ignominous failure as many foreigners predicted.

I venture to predict that the *stability of rubber markets* (not *valorization*, as it has been dubbed, wrongly, everywhere) will be brought about in due course and I feel confident that once more Brazil will be given credit for acting cautiously, and in the common interest of both the producers and consumers of one of its most valuable exports—not as our hasty neighbors think we will do.

Yours truly,

PARAENSE.

Para, June 23, 1911

AN ENTERPRISING SUGGESTION.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

Sir:—I would greatly appreciate advice from you as to the practicability of shipping rubber seed ("semilla de goma") from Brazil to the East Indies; also the cost of freight from New York to Malaysia and other points in the East where rubber planting is in progress.

Some months ago I read an article in your publication concerning an American establishment at Goebilt, Borneo. If it would not be too much trouble, would you kindly refer this letter to them, and to any other firms who might be interested, requesting them to quote a price per hundredweight, f. o. b. New York. The cost of gathering and preparing the seed for shipment would, of course, be great; but I understand that seedlings from the Amazonian species are showing the best results in the east.

Yours very truly, W. H.

Construction Office, Madeira-Mamoré Railway, Porto Velho, Brazil.

[There is absolutely no market for Pará rubber seeds in the Far East. With nearly 1,000,000 acres planted to rubber trees they have so much seed that they are already crushing it and making oil out of it. Besides the cost of collection there is almost nothing. Further than this one has to know how to ship seed in the most expert manner or they will perish. With regard to the American company at Goebilt, Borneo, they are not a planting company at all, but are at work on wild producers.—*The Editor.*]

RUBBER FROM NATAL?

ACCORDING to the London correspondence of the *Times* of Ceylon, a tree, locally known as the *Tirucalli*, which affords a new source of rubber, has been discovered to abound among the dense scrub in the northern parts of Natal. This tree is said to yield a sticky fluid, containing 10 to 20 per cent. of fine rubber, in conjunction with 50 per cent. of valuable resin. A concession, covering an area of 600 square miles, is reported to have been obtained by a company established for the purpose of exploiting the exudations of the Tirucalli tree.

While a high percentage of resin is said to be undesirable in rubber, the Association of German Paper Manufacturers is offering a liberal reward for the discovery of a substitute for American resin, so that, if correct, this new source of supply is of interest for two important branches of industry.

Mexican Rubber Plantation Notes

By a Special Correspondent.

APROPOS of the remarks in THE INDIA RUBBER WORLD of June last under the caption of "Theatres or Experiment Stations," it may not be generally known that a few years ago the Mexican Government had an opportunity of establishing a botanic garden and experiment station under exceptionally favorable conditions. The idea originated with J. C. Harvey, whose special fitness for the direction of such an enterprise was well known, his credentials including personal recommendations from a number of men eminent in botanic science. Mr. Harvey's proposal embodied the offer, as a free gift to the government, of his own valuable collection of rare indigenous and exotic plants at La Buena Ventura, conjointly with the offer, likewise free, on the part of the Mexican Mutual Planters Company, of Chicago, owners of the estate of La Junta, of an ample extent of forest land conveniently located for the purpose named. By means of suitable introductions and the aid of prominent officials in Mexico City the Departmento de Fomento was approached and negotiations initiated. After the lapse, however, of some months, during which Mr. Harvey paid several visits to the capital in furtherance of the project, its discussion was abruptly terminated by an announcement on the part of the authorities concerned that the matter had been duly considered and could not be entertained. One of the principal objections advanced against it was the fear that students of botany going down into the malarial regions of the rubber country would pay the penalty of their temerity by early and sudden death! At the time referred to rubber planting was at its height in Mexico, and it can hardly be doubted that, had such an organization come into existence then, providing means of systematic study, on scientific lines and under actual field conditions, of the formidable array of problems connected with the cultivation of *Castilloa*—many of which have even yet reached but partial or tentative solution—the status of the industry in this country today would have been very different. For nobody will deny the immense value of the practical assistance rendered to planters of *Hevea* in the Far East by the botanic gardens and experiment stations at Peradeniya, Singapore, Penang, etc., under such famous workers as Ridley, Willis, Wright, Carruthers and many more whose names are intimately associated with the technics of rubber cultivation. In failing to come into line in the direction indicated, Mexico has lost a great opportunity.

The planting on El Chival estate, of the Orizaba Rubber Plantation Company, of Chicago, Illinois, situated in the Department of Palenque, Chiapas, was completed in 1909. The total area in rubber is 1,528 acres, the estimated number of trees being 344,000, representing an average of 225 to the acre. The product of the tapping season of 1909-1910 amounted to 1,550 pounds of rubber, which was sold at $1.75, gold, per pound. The current season's tapping operations were delayed several months awaiting the arrival and setting up of plant, which consists of a washing and crêping machine and hydraulic press, by Messrs. David Bridge & Co., Limited, of Castleton, Manchester, England, and a Fairbanks & Morse gasoline engine. A hydraulic ram has been installed in the Arroyo Chival, furnishing running water to all departments and keeping tanks of 5,000 gallons' capacity full, for use in case of fire. A rubber mill building, 48 feet by 56 feet, with cement floor, has also been erected. A shipment of 1,700 pounds of crêped and blocked rubber has just been made to New York.

Of what is known as the Markley group of rubber plantations in eastern Chiapas, that of Lumijá, near the town of Salto de Agua, was turned over to the stockholders two years ago, and tapping has been proceeding since. The planting on the Wisconsin estate of the Wisconsin Rubber Company, in the same district, has also been completed, and the property passed into the hands of the stockholders last month. The planted area is 4,000 acres, with 640 trees to the acre. The transfer of the adjacent Philadelphia estate of the Mexican Plantation Company took place on the 1st of February, 1909, and the Development Company is now going ahead under a new contract on behalf of the stockholders. Tapping was commenced on this estate on the 18th of July, 1910, with the Smith knife, three or four V-shaped cuts being made on each tree. The yield per tree has run from one-and-a-half to three-and-a-half ounces of dry rubber, the age of the trees ranging between six and nine years, the larger yield naturally coming from the older trees. The latex is treated by a special process devised by the manager, Mr. H. H. Markley, no coagulant being employed. The latex is first strained, as usual, into tanks, and five parts of water added. Twelve hours later the water is drawn off, and the residue, or rubber cream, is dried on a revolving drum, heated by steam, the latex cream being fed from a pan below. This pan is raised by means of a lever until the cream comes in contact with the drum, the surface of which, as it revolves, becomes coated with the cream. The pan is then lowered and the coat of cream on the drum allowed to dry—some seven minutes sufficing for the purpose—when another coat is applied; this operation being repeated until the successive layers of latex cream have attained a total thickness of about a quarter of an inch. The product is then removed in the form of a sheet of rubber 3 feet wide and 18 feet long, weighing approximately 50 pounds. In packing for shipment, two such sheets are rolled up together and covered with a *petate*, or piece of native rush matting.

Some tapping has also been done on the Iowa plantation of the German-American Coffee Company (owning the extensive coffee estates of El Triunfo at Tumbalá, near Salto de Agua), acetic acid being the agent used in this case for coagulating the latex.

The Rio Michol and San Leandro plantations, situated in the valley of the Rio Michol between the towns of Salto de Agua and Palenque, have been tapping for a couple of years, and are turning out rubber of fine appearance. On these estates a tapping tool similar to the Smith knife is used, and the latex converted into rubber by means of calorific action. After the usual washing, the resultant cream, to which a small amount of formaldehyde is added (for the diminution of albuminous matter), is put into porcelain lined kettles, each holding two liters, and immersed in boiling water. In fifteen minutes the cream is brought to boiling point and coagulation occurs. The content of each kettle is then turned into a frame or mould, and subjected to pressure, A dozen or more frames are placed on top of each other and pressed simultaneously for a period of twenty-four hours, when the rubber is removed to the drying room.

The effect of the revolution in Mexico, combined with more recent political developments, has been to create widespread demoralization in the agricultural labor element, with serious consequences to planters generally, almost all of whom have thus suffered more or less, while in some instances field operations have been completely paralysed. The "Maderistas" have released large numbers of *enganches*, or indentured men, on various estates, which action has tended to breed discontent amongst the voluntary laborers, who now feel that they must stand out for shorter hours or smaller tasks and higher pay. (The usual wage has thus far been 66 cents (Mexican currency) per day, with food and quarters.) Such is now the case at the town of Jaltipán, on the Isthmus of Tehuantepec, which has been an im-

portant labor recruiting centre for many years, and contractors are experiencing great difficulty in fulfilling their undertakings. From Chiapas come reports of a similar nature. Along the line of the Pan-American Railway, where formerly labor was abundant at the straight rate of 50 cents per day, none is now to be had at any price. But, with all this, there has been no quitting on the part of planters; all remain at their posts, doing the best they can until things readjust themselves.

MEXICAN RUBBER EXPORTS.

OFFICIAL Mexican statistics of exports to April 30, show following results (converted into gold):

	1910.	1911.
MONTH OF APRIL—		
Rubber	$915,893	$659,928
Guayule	465,297	575,829
TEN MONTHS TO APRIL 30—		
Rubber	$6,315,600	$9,560,787
Guayule	3,763,676	5,216,946

FROM THE TIERRA CALIENTE.

R. L. RICE, an exceedingly energetic sales agent of the Hood Rubber Co., Boston, Massachusetts, is an extensive and enthusiastic traveler. The illustration shows him on a Mexican vacation

R. L. RICE IN MEXICO.

trip, far down in the *Tierra Caliente*. The result of this trip and of others in the tropics, is that he is much better informed upon crude rubber questions than most men in his particular line of industrial endeavor.

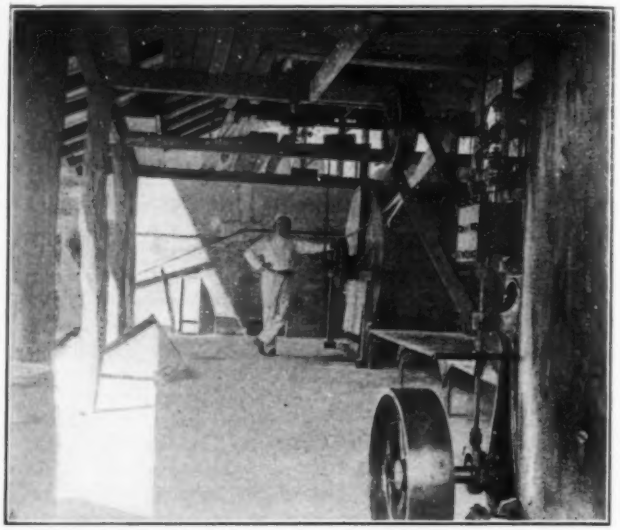
A NEW COAGULATING METHOD.

TO THE EDITOR OF THE INDIA RUBBER WORLD: SIR.—Among the various consignments of Mexican plantation rubber which I received during last winter, was one of 2,000 pounds, prepared for market in a manner so radically different from the usual methods in vogue that I think a description of the process may prove interesting to many of your readers.

This consignment was made to me at New York by Finca "Filadelfia," located at Lumija, in the interior of the State of Chiapas, Mexico, and belonging to the Mexican Plantation Company, of Philadelphia, Pa., a property consisting of nearly 4,000 acres of Castilloa rubber, the oldest of which is now nine years of age, under the care and supervision of Mr. H. H. Markley as general manager.

Accompanying the consignment was a letter from Mr. Markley describing his process of preparing the latex for market; the result of his years of study, observation and experiment.

As the latex is brought in by the tappers, it is first strained to remove all foreign matter and it then receives one washing or "creaming" with a sufficient volume of water. From the washing tanks the latex is then run into a large shallow pan, into



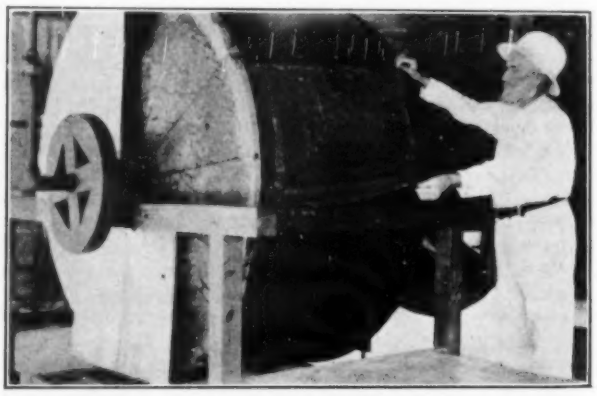
MARKLEY'S COAGULATOR, SHOWING ENGINE, BOILER, MACHINE AND VATS IN THE BACKGROUND.

which is barely immersed the under surface of a copper drum, measuring three feet in width and six feet in diameter.

This drum is heated by steam to between 160 degrees and 175 degrees Fahr., and is revolved slowly, just fast enough to allow the thin film of latex to dry, which its surface has gathered in passing through the latex in the shallow pan during each revolution. The revolution of the drum is constant until its surface has collected and dried a mass of rubber, say one-quarter of an inch thick, when a knife cut is made across the drum and the mass of rubber removed in the form of a sheet eighteen feet long and three feet wide. These sheets which, as removed from the drum, are thoroughly dry and do not contain over 1 per cent. moisture, are immediately rolled up and are ready to ship to market.

The entire process is purely mechanical, as no chemicals of any nature whatever are used.

Moreover, if a smoke-cured rubber is desired, the drum is en-



SHOWING THE INVENTOR TAKING OFF THE SHEET OF RUBBER.

cased or housed and smoke introduced, which acts on the thin film of latex taken up on each revolution of the drum and thus producing a thoroughly smoke-cured sheet.

The product of this drum is sixty pounds of dry rubber per day.

Mr. Markley has had three more of these drums made, which are now on the way and will be set up and running by July 1, I understand.

These new drums are made ten feet in diameter, thus producing a strip of rubber thirty feet long by three feet wide and making the entire plant capable of producing 300 pounds of dry rubber daily. As this property has a sufficient number of eight and nine-year-old trees to keep such a plant running, I believe that at last we shall have one Mexican rubber plantation producing regularly a quantity and quality of rubber to command the interest of our large rubber mills.

Regarding the quality of rubber produced by this process I may mention that I divided this consignment into four parcels and sold it to four different mills at a price close to the Up-River Fine Para, one lot being sold on January 16 at only 5 cents per pound less. I received very favorable comments from the trade on this lot of rubber, one buyer saying that this lot of rubber was the closest approach to Amazon Para that he had ever seen, both in appearance and strength of fiber.

Samples of this lot, now on file in my office, after nine months of age, show no deterioration from decomposition of vegetable albumens and resins, which obtain in all Castilloa rubber; in fact, they have hardened and toughened similar to Para grades and quite unlike the native Mexican and Centrals.

I believe Mr. Markley deserves much credit for working out this process on such a practical basis, that the Mexican Plantation Company will derive much benefit by preparing their rubber for market by this process and that other Mexican plantation companies and also the consuming rubber mill will all be able to profit by this process. Respectfully yours,

W. L. WADLEIGH.

Boston, July, 1911.

INTERCONTINENTAL RUBBER CO.

The various plants of the Intercontinental Rubber Co. are again running full capacity, and the shipment of rubber is being resumed as rapidly as possible, a very favorable condition when the strenuous occurrences in connection with the recent uprising are considered. The company paid its regular quarterly dividend of 1 per cent in June, and a dividend of a similar amount has just been declared for August, so that the 4 per cent. basis on which the stock has been kept for some time past is thus maintained.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta-percha for the month of May, 1911, and the first eleven months of five fiscal years, beginning July 1:

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
May, 1911.....	$179,827	$75,406	$720,130	$975,363
July-April	1,742,683	1,894,282	5,198,295	8,835,260
Total, 1910-11.....	$1,922,510	$1,969,688	$5,918,425	$9,810,623
Total, 1909-10.....	1,754,082	1,792,691	4,622,560	8,169,333
Total, 1908-09.....	1,371,586	1,208,473	3,468,945	6,049,004
Total, 1907-08.....	1,225,618	1,486,959	3,443,465	6,156,042
Total, 1906-07.....	1,135,116	1,082,003	3,358,459	5,575,578

THE above heading, "All Other Rubber," for the month of May, 1911, and the last eleven months of the fiscal year, includes the following details relating to Tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
May, 1911.....*values*	$310.346	$59,194	$369,540
July-April	1,528,136	479,213	2,007,349
Total, 1910-1911.....	$1,838,482	$538,407	$2,376,889

NON-SMOKING OF PLANTATION RUBBER.

By Joseph T. Wicks.

AT the commencement of a new departure, like the preparation of plantation rubber in Ceylon and the Malay States; it is very important to consider how it should be conducted to suit the requirements of rubber manufacturers of America, England and the Continent.

Now the less the rubber is handled the better will be its quality. Why should buyers be called on to pay something extra for a process of smoking which is useless, and no doubt initiated by men who are not rubber men, and who know not what is required. A buyer may be asked to pay a few cents per pound more for a smoked lot of plantation rubber, the rubber being to this extent poorer in quality. Therefore, we practical experts say to the planters, don't handle the prepared plantation rubber merely for the sake of handling it; be content, let well alone, only see that you get clean and air-dried rubber.

Rubber cultivators should not attempt to imitate the native Indian manufacture on the banks of the Amazon. Here is a case where what is good and suitable for the region of the Amazon, South America, is absolutely worthless and harmful for Ceylon and Malaya. The conditions, as between East and West, are entirely different. We might all start to bind our feet because the Chinese do theirs. Ireland might just as well attempt to initate British Columbia in canning salmon; or London attempt to rival Chicago in packing beef.

The native Indian manufacture of hard cure fine Pará rubber, the production of hams and balls and biscuits by dipping, pouring and smoking is unique and excites the admiration of practical rubber experts who are accustomed to see through the nature of things.

Between the years 1840 and 1850 the American manufacturers induced the Indians of Brazil to ship to New York unsmoked, or as it was then, and is now, called Virgin rubber. The Indians forwarded some cargoes, but as the Virgin rubber was not properly dried, the whey or watery portion of the rubber milk turned sour and on arrival in New York the rubber was in a stinking condition. At that time the manufacturers of coats, pillows, beds and air-proof cushions could not use highly smelling rubber. This happened just prior to the great discovery in America of vulcanization.

As soon as the Indians found that they were not to be paid for Virgin rubber, they quickly reverted to the smoking process and have adhered with great tenacity to their long tried and approved process of dipping and smoking ever since.

The wonderful skill displayed by the native Indians in their waterproofing of cloaks, the making of shoes, balls, syringes and toy animals, is an object lesson that we rubber experts can appreciate and marvel at the Indian's farsightedness.

What manufacturers and practical mill managers in the United States and England should demand of planters, cultivators and gatherers in the following:

(1). Plant and cultivate with all speed.
(2). Cleanliness in collecting Plantation rubber.
(3). Let the rubber be fresh air-dried.
(4). Avoid sunlight and exposure to the sun's rays.
(5). Avoid artificial heat.
(6) Eliminate the smoking process.
(7). Eliminate the pressing or blocking process.
(8). The fewer the processes the greater the strength, therefore, better quality.
(9). Rid yourself of fads.

[We do not wholly agree with the writer nor does he prove his case. If he has facts and figures to prove that plantation smoked is inferior to air-dried plantation rubber we should be glad of them. The mere assertion of inferiority is not convincing.—The Editor.]

A RUBBER PRODUCER FOR THE SUB-TROPICS.

IT has been the dream of many to be able to cultivate rubber in the temperate zone and perhaps that will yet be done. At all events cultivation is more and more extending towards the frost line. Tonkins rubber tire, the *Bleekrodia Tonkinensis*, flourishes where the thermometer for miles gets down to about 40 degs. Fahr. It is therefore possible that portions of the rubber tropics, where it is too cool for *Hevea*, may in time make it available.

In a comprehensive article in the *Bulletin Economique* of the Government of Indo-China, Ilanoi. Dr. Ph. Eberhardt and M. Dubard, two official experts have dealth at length with the botanical features of the tree, as well as the questions of cultivation, collection and preparation.

THE LATEX AND ITS PRODUCTS.
1. COLLECTION BY THE NATIVES.

The appreciation of its value by the natives was due to pure accident, a chance knife thrust revealing the fact that the tree in question was a latex producer. Instead, however, of the latex being kept apart, it was mixed with that obtained from the *Ficus, Autocarpus* and other varieties; the result being a very inferior glutinous product, containing a quantity of resin, which fact depreciated its value upon the European markets. This depreciation being reflected in the reduced limits buyers offered, and the price falling too low to satisfy the natives. They soon abstained from tapping those trees. In this way the exhaustion and destruction of the latter were prevented.

GENERAL VIEW OF A BLEEKRODEA CUT BY THE NATIVES.

When collecting latex, the native has only one idea; to gather the largest quantity possible. Hence he usually employs barbaric methods, which, if they do not cause the death of the tree, result in a long period of non-production, to enable it to repair its injuries. They collect latex from the base of the trunk, up to a height of 8 to 10 feet and also on the large branches. As many incisions as possible are made on the principle that the more incisions the greater the yield. Such, however, is not the case, the yield being less. The lactiferous vessels, being hacked in every direction, no longer permit the normal flow of the liquid; the circulation being impeded and the latex containing a very large quantity of organic substances.

PREPARATION OF THE RUBBER.

In whatever way the tapping has been affected, the native receives the latex in small receptacles of interlaced bamboo. This mode of collection leads to the introduction of foreign substances. These bamboo receptacles are then conveyed to the adjacent village, or to a water-course, where they are placed in a saucepan of water until it boils, being then removed in coagulated form. The latex of *Bleekrodea* coagulates very quickly, that process being facilitated by the motion to which it is subjected in transport.

PERIOD OF COLLECTION.

The latex can be collected twice a year, in the spring and autumn, but the natives are disposed to limit their efforts to the second period, between the end of August and the end of November. At this time the yield is considered to be more abundant. The *Bleekrodea* is extremely sensitive to the variationof the seasons; while its yield varies according to the latitude in which it is being developed.

CLIMATIC INFLUENCES.

The most suitable time for tapping the *Bleekrodea Tonkinensis* has not yet been definitely determined. The yield seems closely related to the atmospheric conditions. In the Bac-Kan region, where the autumn and winter seasons are cold, tapping in November and December resulted in a very limited flow, while that operation in May and June gave in two hours equal to about 12 ounces per tree, from trees of moderate age, 10 inches in diameter. December tappings in the basin of the Black River, considerably further south, were, however, as copious as those of the Bac-Kan region in May and June. The influence of temperature on the yield of latex to be accurately determined, would require observations running over an entire year, at the different altitudes and latitudes where the tree is met with. Another point calling for investigation is the time of day most suitable for tapping.

LATEX FROM A CHEMICAL STANDPOINT.

Bleekrodea latex is a slightly thick liquid, of the shade of coffee with milk, recalling the latex of the *Ficus elastica* (except as regards its color) and like the latter coagulating very rapidly and without the aid of chemicals. The product of its natural coagulation, is of greyish brown color; the white portion very rapidly taking a brownish tint when exposed to the air. Chemical investigation reports its elasticity to be very good, while its nerve and adhesiveness are stated to be perfect.

The composition of rubber from the *Bleekrodea Tonkinensis* is as follows:

Density	0.955
Water	28.32
Ashes	0.62
Actual rubber	60.76
Resins	3.67
Foreign substances, difference	6.63

It is remarked that the quantity of actual rubber may appear small, but this is due to the large proportion of water (28.32%). This percentage of water is attributed to the recent manufacture of the slab submitted for analysis, it having been made only three days previously.

After dealing with various suggested improvements in tapping and other operations, the question of the chemicals to be used is taken up. On this subject it is stated that of various acids, sulphuric acid has always given the best results. Acetic acid seems to produce a dissociation of the surface of the globules,

which prevents their cohesion. Hydrochloric acid likewise seems ill adapted to *Bleekrodea* latex, the product, under its action, being less elastic than would normally be the case.

COMMERCIAL VALUE.

Two samples sent by the author of the paper were valued by Mapes Hecht Fières. One had been treated by ether and freed from all foreign substances, being valued at 72 to 75 cents per pound. The other, a crude sample, gathered without care by the natives and containing a large quantity of impurities (coagulated without using any acid) was valued, notwithstanding its impurities, at about 49½ cents per pound. These prices were quoted at a time of depression when Pará was worth less than $1 per pound.

On the basis of the price current for Pará fine when the article was written, about $2.25 per pound, it is considered that if any *Bleekrodea* rubber was on the market (well treated and well prepared) it would sell at from about $1.62 to $1.80 per pound, a difference of about 28 per cent. While these comparative valuations are thus more or less approximate they are none the less interesting.

NEW TRADE PUBLICATIONS.

JOHN ROYLE & SONS (Paterson, N. J.) publish a series of booklets illustrating and describing their "Perfected" Tubing Machines, made in a series of three sizes, suited for different classes of work. Accompanying them is a partial list of users of these machines, which includes the leading rubber goods manufacturers. The artistically executed illustrations plainly show the construction and general appearance of the machines, which the text describes in detail.

WESTINGHOUSE ELECTRIC AND MANUFACTURING CO. (East Pittsburg, Pa.) describe in detail, in an attractively illustrated pamphlet, their Engine Driven Direct-Current Interpole Generators—Type Q., made in 25 to 1,000 Kw. and 125 to 600 volt sizes, for power purposes. The illustrations, with the accompanying text, are admirably planned to give even the non-expert reader an idea of their constructional and technical advantages.

B. F. STURTEVANT CO. (Hyde Park, Mass.) publish as an addition to their engineering series, Bulletin 188, devoted to generating sets with vertical engines, especially adapted for installation on board ship and for isolated electric power plants. The well-executed illustrations and accompanying text, plainly set forth the advantages claimed for this apparatus, tables with suitable diagrams giving detailed particulars as to their component parts.

THE UNITED STATES TIRE CO., (New York) in distributing its latest publication, "How to Keep Down Tire Expenses," among automobile owners, has not only accomplished a judicious and very timely feat in advertising, but has given practical evidence of its intention to make its recently established "tire service department" of practical value to the owners of automobiles. The publication in question, which is liberally and effectively illustrated and typographically attractive, contains a great deal of information that the motorist formerly acquired for hard cash, or at the cost of expensive experience and which is set forth in plain terms. It is designed to eliminate the most frequent sources of tire trouble and the intelligent application of the information it contains will go far towards accomplishing that result and increasing tire mileage.

Recording gauges for a variety of purposes of recognized accuracy are the subject of bulletin No. 142 published by The Bristol Company, Waterbury, Connecticut. Thousands of these gauges are in use for recording pressure, vacuum, water level, moisture, etc. Their recording water-level gauge, for tanks, reservoirs, sewers, canals, etc., are notably useful for recording the level of water where the recording instruments are at higher level than the surface of the water under observation. The bulletin, in its 24 pages, illustrates and describes the various forms in which these gauges are supplied.

REAL SYNTHETIC RUBBER.

SAYS a London daily regarding the production of synthetic rubber from Isoprene at the International Rubber Exhibition:

"So far as we are concerned, the experiment is interesting, but must be inconclusive. We have never denied to the inventor his ability to produce a substance which has the appearance and some of the attributes of natural rubber, and that we are ready enough to concede to other experimenters who take isoprene (however obtained) as the basis for an artificial product. What we wish to emphasize, however, is the improbability of such an invention becoming a commercial success; that is to say, we do not believe that any synthetic rubber process yet invented can be worked on strict commercial lines that will admit of profits being earned for those who back such processes with their capital. The total annual output of such a commodity claimed by every inventor of a synthetic rubber process with whom we have come in contact invariably shrinks from first airy estimates of hundreds or of thousands of tons to a couple of hundred tons each year at most, and inventors then fall back upon their second line of defence, so to say, and hint, more or less mysteriously, at profits to be earned from other products of their isoprene base, which alone are calculated to make the working of their rubber processes amply remunerative. As the markets for such of these products as have been named to us are essentially limited ones, it calls for no great acumen to discover the fact that to produce them on even a moderately large scale would mean an immediate fall in the selling prices. Therefore, as putative sources of revenue, they are unreliable, and to talk of these increased supplies creating increased uses for them is a weakening rather than a strengthening of the case of the inventor of any 'synthetic' rubber process. No doubt such new outlets in time might be created, but while these were being found the mere fact that supplies of these commodities were much in excess of existing requirements would be bound to keep the selling prices down to unremunerative levels."

ILLUMINATING PARAGRAPHS CONCERNING RUBBER.

"HOME Grown Rubber May Smash Trust"! says the *Boston Post* in big letters half across the page. Just how or when is not explained, nor do the editors care. They know it is the sort of spicy *pabulum* that the public will gorge and feed it out regardless of facts.

* * *

Harper's Weekly informs its readers that black ants in South America gather the coarse Pará from *Hevea* trees and "carry it away." (Doubtless with the idea of cornering it.)

The same trustworthy paper also declares that South American bees tap trees to get gums for their "nests."

(This is not as strange as the habit of the Peruvian frog. The frog, of course, must be a good jumper to secure food and to escape its enemies. As they grow old the resiliency of the leg muscle decreases. They, therefore, with a piece of saw grass, tap a caucho tree, coagulate the milk with their saliva which is very alkaline, and form little pneumatic cushions for their hind feet. These they attach with partly coagulated rubber. They are then able to jump as far as ever. Curiously enough they will not allow any of the young frogs to make or use these rubber soles. Whether this ruling out of the more vigorous ones comes from fear that they may jump so far that they cannot get back, or from simple jealousy, scientists have not determined.)

* * *

The *Chicago Journal* has discovered a "New variety of rubber" in Borneo. It is "jelutong" and comes from the *Dyera Costulata*. (Actually it has been on the market for more years than has the journal that has just discovered it.)

The Editor's Book Table.

RUBBER, by Philip Schidrowitz, Ph.D., F. C. S. Methuen & Co., Ltd., London. (Cloth, 8vo., 290 pp. with 83 illustrations and diagrams. Price, 10s. 6d. net.)

FEW men are better equipped than Dr. Schidrowitz to write on the topic that he has chosen. He is chemist, botanist, physicist and tropical expert. He is in touch with rubber in the field, having studied the plantations in the Middle East and dipped into the jungles of Java and Borneo. He is familiar with German, English, French and American mill practice, not from hearsay but from personal observation. Further than this he writes clearly and voluminously.

In this volume he presents, in a practical, critical and interesting manner, the story of rubber, from the origin of its name and the source of its supply, to its latest industrial application to practical purposes. While the chapters devoted to the production of rubber are exceedingly comprehensive and enriched with numerous original illustrations, the portion devoted to the manufacture of rubber is exceptionally complete, the illustrations including the principal up-to-date machines employed in the various manufacturing departments. The chemical and physical and mechanical properties of rubber have also received detailed attention, as was to be expected from the author's experience as a past member of the Council of the Society of Public Analysts, a past member of the Committee of the Society of Chemical Industry, and a member of the International Rubber Testing Committee. Subjects involving comparatively recent development or novel principle, have been treated at length and with notable care, and the illustrations, which are numerous and selected with excellent discrimination, complete a work which is typographically excellent and a valuable contribution to the literature of india rubber, its prodution and manufacture.

THE AFRICAN RUBBER INDUSTRY AND FUNTUMIA ELASTICA (Kickxia). By Cuthbert Christy, M. B., C. M. (Edin.) London, John Bale, Sons & Danielson, Limited. [Cloth, 8vo., 252 pp. Price, 12s. 6d. net.]

IN this interesting work, Mr. Christy has dealt with the comprehensive subject of the "African Rubber Industry" under its various aspects, with special reference to *Funtumia Elastica* (or *Kickxia*). The two opening chapters treat of the geographical, commercial and statistical phases of the question affecting the various countries of tropical Africa, while the following one deals with the botany, life-history and structure of the genus *Funtumia*, so intimately allied with African rubber culture.

The next stage is the consideration in the fourth and fifth chapters of the distribution of *Funtumia* and of the climate and soils where it thrives. Cultivation, growth, forest and plantation yields, tapping and coagulation are successively treated in Chapters VI to XVI, while Chapter XVII describes the physical and chemical properties of the rubber. In conclusion, Chapter XVIII records the efforts made to introduce *Funtumia Elastica* in the West Indies, British Guiana and the Pacific islands. That success in this direction has been very limited is mainly attributed by Mr. Christy to lack of knowledge of the special planting requirements, the plants being set at wide distances apart in the open without side shade, as if they were *Hevea*.

Mr. Christy's work is thus of an educational character, with the object of diffusing information as to the conditions which lead him to the conclusion that the indigenous tree is the most suitable for general plantation purposes in tropical Africa. Reference is made to the fact being recognized in the Congo that the future of the country as a rubber producing region probably depends mainly upon the cultivation of tree-rubbers; the point now at issue being whether *Funtumia* or *Hevea* is better suited to local conditions.

While estimating on the basis of published statistics the share of Africa in the world's rubber production as 30 per cent. against 60 per cent. for South America and 10 per cent. for Asia, Mr. Christy emphasizes the fact that the average loss of 50 per cent. in washing African rubber, against a maximum loss of 15 per cent. on the South American product, makes an essential difference in the actual result, when applied to clean rubber.

As to future prospects, the opinion is expressed that very shortly there will be scarcely any African wild rubber trees to meet the ever-increasing demand, with the result that there is no hope of recovery for the rubber industry of the West African colonies, unless extensive planting be encouraged to replace the destroyed rubber trees and vines.

Mr. Christy's work, starting from the Western coast, takes the reader through the rubber producing countries of tropical Africa—Gold Coast, Sierra Leone, Southern Nigeria, Liberia, French Ivory Coast, Togoland, Belgian Congo, Kameruns, Portuguese Angola and Uganda. Each of these has its story told in detail and illustrated by graphic statistical tables.

The author is to be congratulated on having gathered so many valuable facts and on having so efficiently grouped them. Over 100 illustrations and ten full page plates embellish the work and contribute to its practical value.

THE PHYSIOLOGY AND DISEASES OF *HEVEA BRASILIENSIS*, The Premier Plantation Rubber Tree. T. Petch, B.Sc., B.A., Mycologist to the Government of Ceylon. London: Dulau & Co., Limited. [Cloth, 8vo, 264 pp. with index and 18 plates. 7s. 6d. net.]

In this comprehensive and careful work, the author has embodied the results of experience acquired during six years spent in the investigation of *Hevea* diseases in Ceylon, and in examination into examples of *Hevea* diseases from India, Burmah, Malaya, West Africa, the West Indies and South America. It describes for the first time, several new diseases, while the detailed account given of the normal structure of the tree is so plain and so complete that it should enable the planter to discriminate immediately and infallibly between abnormal non-pathological appearances and indications of disease.

The various methods of treating and combating diseases likely to occur among rubber trees, are very clearly and fully described and special chapters are devoted to the effects of various tapping systems on the normal functions of the tree, and to a detailed account of the processes that go on when latex is extracted.

Handsomely printed, appropriately illustrated and filling a long existent vacancy in the literature of the practical side of rubber planting, the work will undoubtedly find many interested readers who will profit by the mastery of its contents.

RUBBER SHARE HANDBOOK. DETAILS OF COMPANIES OWNING rubber and other produce properties in Ceylon, the Malay Peninsula, British North Borneo, Sumatra, Java, Africa and South America. [Eighth Edition.] London: *The Financier and Bullionist*, Limited, 1911. [Cloth—boards, 8vo. Pp. IV + 636. Price, 2s. 6d. net.]

Embodying all the features that have won for this work pre-eminence as a reference book for the use of those interested in rubber planting and kindred investments, the current edition supplies, in convenient form, complete information in regard to the companies listed, their capital, officers and directors, properties, production, prospects, operating expenses, etc. A special alphabetical list of directors is appended. The book is well printed and practically arranged to facilitate ready reference and will take its place with its predecessors as an authentic record of an interest, the growth of which in financial and industrial importance is reflected in its orderly and closely printed pages.

Piece Work and Bonus Payment In Rubber Mills.

By a Practical Man.

IN paying for labor in rubber factory work, several methods are employed, among them being ordinary graded wages by the hour, piece-work, bonus or premium additions to regular wages, and some arrangement whereby a portion of the earnings of the factory are distributed among its employees. We will discuss in this article the relative values of piece-work payment and bonus payment.

Wages, at first glance, would seem to be the money earned by a workman. This is, however, not literally true. There is a minimum wage which must be paid a man for a day's work without specific reference to its quantity or quality. From this minimum the wage rate rises, governed by a number of conditions not always under control of the factory. The minimum is found, naturally, where the labor supply is abundant, and also unskilled, for it is true that men in the skilled trades or occupations, are, under normal conditions in this country, rarely long out of work. But many factories are more or less isolated from centers where labor can be readily obtained, hence the problem is, perhaps, more vital, and the superintendent, to protect himself, must make use of a quality of men, and pay a higher wage than would be necessary under different conditions. The average factory pays what it has to; for common labor, $1.50 to $2.00 per day. One that has the reputation for paying lowest wages, invariably finds the "floaters," the shiftless, and the unskilled besieging the employee's entrance.

The development from unskilled material, of the accomplished artisan, is therefore, a matter calling for patient, persevering training throughout considerable periods of time, during which the factory, in addition to the $1.50 to $2.00 per day in wages, has had to pay a more or less exacting toll in the way of broken machinery, and imperfect goods, with an occasional finger or arm, or other serious injury thrown in by way of variety.

The finished producer, skilled workman, machine operative, etc., having been evolved by training, what wages will he command, and what, per contra, in the way of production should you expect from him? Of two things one can be very sure: He knows what wages he wants, and just the amount of effort he will put into his work to get it. He has acquired skill under his employer's teaching, but he has also secured a fine and discriminating judgment of what constitutes a day's work.

Such a workman is not a bad fellow. He has been employed five, fifteen, twenty-five years, and will put his shoulder to the wheel to help get out a rush order on time. One can rely upon the quality of his work, on his dependability—but he don't go home at night exhausted by his exertions, for the very particular reason that, barring an occasional spurt for "auld acquaintance sake," there has been no extra money in it for him. He travels along in the rut worn by common factory practice, and will not depart from the pace workmen have set for themselves.

This being a basic fact, it is interesting to notice that some rubber factories still cling to wage payment by the hour. It is also true that where this is the rule, nothing like the real productive capacity of a workman can be secured.

A factory conducted along the easy lines of pay by the hour, successful in the past, established in the quality of its goods, is loath to depart from time-honored methods at the behest of competition. But instances are numerous where they have been obliged to do this in order to maintain their position, their prestige, their very existence. It is self-deluding to contend that quality, must of necessity, be sacrificed to quantity. The "other fellow" is turning out the goods and underselling the conservative, pay-by-the-hour factory. Then, at last, the emergency must be faced. It is of too vital importance to be longer ignored, and haste is made to compare the advantages of piece-work and of bonus incentives in payment for factory work.

Let us consider the results that would accrue from the adoption of "piece-work."

Factory history has well written into it the perils that lay along the piece-work payment path. The general subject has been so widely discussed among employees, that, whether they have had personal experience with it or not, the average workman views it with suspicion. He has, perhaps, come to regard it as that new thing by which the boss proposes to get a larger percentage of work out of him, or his machine, than he is willing to pay for in proportion. Perhaps he looks back to the time when it was tried on him, and he, in the simplicity of his enthusiasm for better wages, *"worked,"* to find, after a trial of a few weeks or months, that the new rate was cut down, but the demand of the factory for greater production insisted upon. After such an experience it is difficult to get a workman to control his dislike for any innovations in the method of earning his wages.

It need hardly be said, however, that such blunders (for such unpreparedness is blundering), on the part of the factory management can be easily avoided. To do so, careful studies must be made. First, of each piece of machinery, to ascertain its production in pounds or feet per hour, as then operated, these figures to be properly tabulated. Such a study would probably disclose that the machine was not turning out 75 per cent. of its normal capacity, perhaps not 50 per cent of it, owing to any one of the following causes: If a mixing mill: because the maximum weight of a batch a workman could handle in a given time was not furnished by the compounder; or because he lost time in the beginning of each session, waiting for his mill to "warm up"; or waiting for material. If a spewing machine: because workmen had to wait for stock from the calender, or mill, or had to return it because, when it did arrive, it was unfit for use. If a calender: it is too hot or too cold, or it is waiting for material from the mixing room, or cloth from the dryer. *These retardments to, not maximum, but merely normal productiveness of machines, are all subject to correction at the hands of the men in charge of departmental work, and it would be folly to rush into piece-work or any new method of wage payment before correcting evils in administration.* For it must be borne in mind that these evils have little to do with the individual capacity of a workman, but with the lack of effective management under which he labors. If a piece or pound work rate was made without first correcting such conditions, did they exist, the workman working to a common end, would secure extra pay for doing what, had all the departments of the mill been properly managed, he would have done as a part of the regular work and production of the day, and without extra exertion on his part.

It is also true that the introduction of any plan whereby workmen may increase their wages, is, to a degree, corrective of the evils to which reference has been made. For the man who is working to increase his wages, and is dependent in part on material to be supplied by another man or department, makes his wants known in no uncertain way, and demands proper service all along the line. But what a workman can secure, a foreman or superintendent should have foreseen and provided for.

Incentive, therefore, to greater production per workman, should find its satisfactory development and illustration in the individual. A productive workman should have to wait for no material or convenience that can in reason be supplied. With everything to hand and in constant supply, it is possible for him to make every movement count, and demonstrate the beauty, desirability, and wonderful effectiveness of the piece-work method.

If factory conditions have been corrected where study revealed the necessity, and after close analysis of men and methods, equitable piece-work rates established, there is no reason why relations between employer and employed should not continue indefinitely on a basis of mutual confidence and mutual advantage.

Every manufacturer is, of course, aware of at least one weak spot in piece-work method of paying for labor, so far as his end of the proposition is concerned. Whether the factory output is five thousand articles of a given sort per day, or five times as many, he pays for his labor the same rate for each. It would seem as though a manufacturer should be able to profit in proportion to the capacity of his factory. To reach its maximum, he has, possibly, been able to give employment to twice as many workmen as in previous seasons. Logically, this piece-work system, to be equitable, should show a greater gain to the manufacturer from the production of twenty thousand articles per day than from ten thousand. Let us examine the "bonus" method of paying for labor, and see if it offers a solution for this difficulty:

Working with a bonus arrangement, the factory employee finds his regular rate per hour secured to him, plus whatever he can produce over and above a certain quantity of output from his hands that has been agreed upon as constituting a normal day's labor. For example: He is a tire builder, rated at $3.00 per day, and for this wage it is understood that he will produce ten tires. This number he can make working faithfully and intelligently. If, however, by putting a little more brains into the work; by improving his method of handling tools or materials, he can produce fifteen tires, he secures an addition to his regular wages of $3.00, a bonus of, let us say, 15 cents per tire, making a wage for the day of $3.75. The gain for the factory is seen in the reduced labor cost: the fifteen tires costing 25 cents each instead of 30 cents each for ten.

It is, of course, true that a flat rate of 25 cents per tire could possibly have been secured in a straight piece-work proposition, or any other rate that a factory was able to establish. It is apparent, however, that to carry on successfully the piece-work method of payment, a factory requires to be thoroughly well organized. Under this system a workman is presupposed to make proper wages, and the factory is obligated to supply the means. If the supply is continuous, and the resulting finished goods satisfactory, all is well. But delays in process, owing to shortages in material, or breakages, curtail the daily earnings which a piece-worker may make, with consequent and consistent dissatisfaction.

As a rule, in making a piece-work rate, care is used to make it so low that only by extra and continuous exertion can a workman make a satisfactory wage. This, as a rule, is not an insurance for quality. Then, too, capacity varies with the workman, and the rate that pays one man properly, pays another inadequately. These conditions do not arise under the bonus system.

We are prone to lose sight of the fact that a workman's time has a value in itself for him. This the factory may purchase at an established rate, and assume the responsibility of getting value received. This acknowledgment of a man's value has an ethical side not found in piece-work propositions. Giving a workman a wage rating, makes him a component part of the factory, to which, as the years of his employment continue, he becomes attached. The piece-worker, on the other hand, has no interest in the factory outside of the particular work in which he is engaged.

We have, however, in the first of this article, intimated that wages was the money a workman *earned*. Singularly enough, opinions might differ as to what sum constituted a man's earnings for a day's work of a specific kind. Standards differ. Labor has not been standardized. The production of a workman for a day's wages in one mill, would not meet the exacting requirements in another. It is, therefore, more complex than appears on the surface. The effort that, a decade ago, would have been accepted as constituting a day's labor, will not answer in these high-pressure times. The modern superintendent is not an "easy boss."

Mr. Frederick W. Taylor, in his book on "Scientific Management," lays special emphasis on the necessity for standardizing men. Men are picked for certain work, trained to become experts, and then, it is needless to add, driven to secure the highest possible production.

Such a trained man would be paid on the basis of his productive capacity, either by straight "piece work," or some plan whereby his scheduled rate per hour would be increased by a "bonus."

Of these two methods, "piece-work," or "bonus" payments for labor, which should be adopted, is therefore, largely a matter of choice. The size of the factory, nature of business, location, quality and quantity of workmen, should all be considered. For a small factory employing under 500 men, doubtless some form of bonus would be found to work satisfactorily, for in many situations it is necessary that a factory force should be mobile; with men trained to the work of different departments.

In the larger factories, however, where there is much specialization, and it is possible to employ large numbers of men at one sort of work, "piece-work" payment will achieve most valuable results. In such a factory there is little shifting of workmen from one department to another. Each man becomes an expert, and the larger numbers engaged in each line of production, permit of inspection, and records of individual work being reduced to a matter of acumen and mathematics.

UNITED STATES RE-EXPORTS OF CRUDE RUBBER.

AMONG the features of recent United States rubber statistics is a fact not generally known, that this country is acquiring growing importance, not only as an importer of rubber, but also as a re-exporter of that article. This statement is illustrated by the following table showing the results of the last four fiscal years:

UNITED STATES. RE-EXPORTS OF CRUDE INDIA RUBBER.

	Pounds.	Value.
1908	4,110,667	$2,994,208
1909	3,791,971	2,964,496
1910	6,492,947	7,629,380
1911 (Estimated)	6,200,000	6,000,000

The distribution of the re-exports for the first three years was as follows:

	Canada.		United Kingdom.		Other Countries.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
1908	2,755,662	$2,061,497	691,044	$500,023	663,961	$432,688
1909	2,638,685	2,076,299	586,193	468,405	567,093	418,792
1910	3,382,153	3,376,506	2,169,370	3,291,394	941,424	961,480

Mrs. Miner plans to make her home in Granby and carry on the charitable benevolent work in that community that she and her late husband were so much interested in.

INSIDE HISTORY OF ONE SYNTHETIC RUBBER SCHEME.

AN investor in one of the long-drawn-out synthetic rubber schemes that drew into it a distinguished chemist and that got at the pockets of some very astute business men, is at length willing to talk freely. The whole business was handled with exceeding secrecy, and up to the present no one has talked. The beginning was when the inventor called upon a prominent New Jersey business man and exhibited a substance of a whitish appearance with a very disagreeable odor which rebounded when dropped to the ground. He claimed it to be synthetic rubber, the real thing, and added that it could be manufactured in large quantities and at a very low cost. The business man did not act quickly enough to suit the inventor, so, through certain promoters, a prominent automobile manufacturer in Ohio was interested in the proposition. Definite agreements having been reached, a temporary organization was formed and one of the best-known chemists, then professor of chemistry at a great institution, was engaged to ascertain if the product was genuine and if it could be manufactured commercially. In the interim various lots, which the inventor claimed to have manufactured, were made into rubber bands, hot water bottles, hard rubber goods, etc., and from tests were apparently as good as Pará. The late Durand Woodman made a test and reported as follows:

"I have examined the sample of rubber which you handed me and which is alleged to be synthetic. I have made numerous tests and comparisons and find that while there are some marked differences between the sample and ordinary grades of good Pará rubber, these differences correspond with other well-known grades of rubber. These points are noted in the following summary of tests:

	No. 10,524. Synthetic.	No. 10,545. Pará.
Soluble in acetone	6.60 per cent.	2.70 per cent.
" " alcoholic potash	1.15 "	traces.
" " nitrobenzol ...	24.35 "	0.00 per cent.
Moisture	0.45 "	0.20 to 0.50
Ash (mineral matter).....	0.35 "	0.30 " 0.45

"It is here shown that the amount lost under the action of acetone is more than for good grades of Pará, but it is not more than for the best Madagascar and other grades of best African rubbers. The loss by the nitrobenzol test is large and corresponds to a grade of rubber, or to the admixture of organic substance not rubber of a resinous, waxy or pitchy nature. I have found this to occur in the so-called bastard rubber from Mexico and other localities.

"I do not find any reason for considering the rubber as a synthetic product. The alleged process should certainly be made to stand the test of having all the materials used censored by some one competent and known to the parties interested. The absence among the ingredients, of any rubber material from the rubber tree should be fully proved to the satisfaction of the most exacting."

The inventor, in explaining his invention, stated that while a resident of Georgetown, B. G., he had studied the rubber tree indigenous to those parts, and had carefully analyzed the latex and had endeavored to reproduce, not rubber, but the latex, combining in the latex those elements supplied by nature. For years he had labored without success until just as he was about to give up in despair, success came to him by accident.

The chemist was quite skeptical at first and did not take an active part in the experiments, merely overseeing in a general way, the inventor doing the work, but finally when, in the last stage, small particles of a putty-like substance began to float on the top of the mixture, and when this substance was dried and appeared in truth to be synthetic rubber, he became greatly interested in the work.

At this point the inventor showed his business training and refused to give the complete formula to the chemist. However, a larger stock holding and a slight change in the management soothed his feelings, and he finally gave the formula verbally.

In accordance with the plan of organization a written and detailed formula, made out by the inventor, had been deposited with a New York City trust company, which could only be lifted upon payment to the inventor of a large sum of money and delivery to him of certain stock of the company. To earn this the inventor had to manufacture two thousand pounds at one run at a cost not exceeding twenty-five cents per pound.

The chemist now undertook the experimental work in earnest, and finally announced to the writer, who had succeeded the business man as fiscal agent representing the organizers, that the process was genuine, and exhibited samples which he designated as synthetic rubber and which he stated he had manufactured by the inventor's formula without the aid or admixture of any real rubber. He stated that the material could be made in quantities at a cost of about fifteen cents per pound, and added that the ingredients could be secured to any amount in the open market. At a meeting of the stockholders, shortly after, the chemist made a similar verbal report. On the strength of this report, manufacturing and selling corporations were organized and $20,000 set aside for expenses. The inventor moved west, where, with the facilities offered in the form of expert engineers, chemists, etc., it was thought that under the direction of the manufacturer, who had been elected president, the manufacturing problem would soon be worked out. But, alas, for human plans! Months and months passed away and about all the inventor did was to make excuses and design machinery which refused to work. Just when the president would grow discouraged, the inventor would restore hope by making by hand a batch of ten pounds or so of nice clean rubber and then get busy on another machine.

In the meantime, the writer conceived the idea that perhaps the inventor had fooled the chemist, so persuaded the latter to make some more rubber. He stated he used the formula as he recollected it and as he collected it from his notes (for the formula he used when he made the rubber he had written out and put in escrow for safekeeping and it could only be taken out in the presence of the president), but the result was not rubber but a brittle nondescript. Again he tried, but with the same result, and he reluctantly concluded that he had been fooled, that the inventor had put real rubber in the mixture during the early stages and then recovered it by coagulation at the end; or that his own formula was defective, or that he had forgotten some of the details of manipulation. So with many sighs of regret, the eminent chemist gave it up.

The $20,000 disappeared for lawyers' fees, traveling expenses, in building special model machines, weekly salary to the inventor, etc., and he, having extracted all he could, journeyed back to New York, there to rail at the unjustice and heartlessness of corporations, and perhaps to lure other good American dollars into his pocket by the glittering promise of synthetic rubber.

This is not quite the end, for, to the writer's surprise, the inventor recently called upon him and told a long tale of woe which, boiled down, was to the effect that the formula was all-right; that he could make rubber and wanted to, only the western people had spies about and he didn't dare go ahead and complete his contract for fear they would steal his secret. So it was arranged that a certain well-known rubber corporation should take up the work, and if the formula was found genuine and valuable, they would buy the other interests out, etc.

The inventor agreed to give the corporation's chemist a demonstration. He was to manufacture the stuff in two batches up to a certain point. Each batch could be tested for rubber and

none would be found. Then the two batches were to be combined and 90 per cent. of water added and the rubber would form, slowly but certainly, as the small particles coagulated and floated to the surface. This looked good, but the eccentricity of genius again asserted itself, and the inventor failed to produce the mixture or even to keep the engagement. He pleaded illness and a new date was arranged. This time he plead lack of opportunity as he had been busy working on a new refrigeration process. So the great corporation just gave it up.

The inventor's formula in escrow in New York is apparently tied up, but the chemist's formula was lifted and followed out and the result had about as much elasticity as a piece of machine-made pie crust. Perhaps some of the chemical readers of the INDIA RUBBER WORLD would like to try it. Here it is:

a { Pb. A ..... ½ lb.
{ H_2O ..... 1 qt.
{ Pb. O ..... ½ lb.

One pound of PbO in 1 gallon of linseed oil, shake thoroughly, then mix in lead solution (a), shake well and settle. After settling., filter or decant and work well with very dilute H_2SO_4—enough to precipitate all lead in solution. Mix 500 cc. of a dilute solution of H_2SO_4 (⅓) to the filtrate of 2½ gallons of the treated oils. Settle over night and filter. One qt. H NO sp. grav. 1.25, ⅛ qt. H_2 $3SO_4$ strong. Mix and cool, then add this amount to ½ gallon of the above filtered oils. Stir slowly in a large open porcelain-lined iron evaporating dish. Stir now and again. Take 1 qt. above mixture, add 6 ozs. H NO_3 plus 1 oz. H_2SO_4 and heat to 140 degs. Fahr., with constant stirring, when action commences and frothing, stir until boiling ceases. Add 3 gallons of water when cold. Allow to stand 12 hours. Pour off water and repeat for four days.

For one pound of above product dissolve in CS_2.

One quarter pound glue in H_2O, hot; 2 drams. $K_2Cr_2O_7$ in 8 ozs. H_2O, mix with terpentine, make a solution; add ¼ lb. NA_2CO_3; expose to light several days, and then mix with the CS_2 solution and treat to form the required product.

The formula devoid of chemical terms is thus given by one of the Western officials:

FIRST ACT.

REMOVE GLYCERINE FROM OIL.

(a) Take one gallon of well-settled Linseed Oil, to which add 3 oz. of Litharge; mix well with stick or blow with air.

(b) Take one quart of rain water, heat to near the boiling point, and just before it boils add, a little at a time, 14 ozs. of Acetate of Lead. When the Acetate of Lead is all dissolved add 2 ozs. of Litharge.

When solution (b) has become cool, add it to solution (a) and stir the two well together. Blowing it with air is the best method of mixing. The combined mixture of (a) and (b) make solution (c).

Solution (c) must be allowed to settle, the clear oil coming to the top.

SECOND ACT.

Take one part of sulphuric acid and nine parts of water; mix well. This makes the "acid solution."

The clear oil resulting from the settling of solution (c) is termed "treated oil."

To three parts of "treated oil" add one part of the "acid solution." Stir well and allow to settle. This solution will settle in two or three days, and the clear oil which appears on top is termed "acid treated oil."

THIRD ACT.

Six gallons of oil which has gone through the first and second act (being what is termed "treated oil" and also "acid treated oil") is put in a large wooden tank which would hold about 80 gallons. To this oil is added three gallons of nitric acid and the mixture stirred violently with a stick, or blown with air from the power air pump. Stirred for 10 minutes.

After this solution is well stirred, there is added to it one pint of sulphuric acid, teacupful at a time.

When there has been a pint of the sulphuric acid added, the entire mixture begins to boil *very actively*. The "chemical change" takes place so violently that the 300-gallon tank is entirely filled with the mixture as it boils. The product obtained from this "boiling" or "chemical change" is a "red sticky tar."

This "red tar" which, when cold, has decreased in bulk to about the original amount (or 7 gals.).

FOURTH ACT.

This "red tar" is put in a large wooden tank, which will hold about 100 gals., and washed with flowing water. The water must continue until the acid is entirely washed out, which takes two or three days.

The *washed* "red tar" is then put into a ten-gallon crock. To this is added three quarts of "Bi-sulphate of Carbon" and about one gallon of water. The entire mass is allowed to rest several days, and each day stirred three or four times, the tar being slowly *cut* by the Bi-sulphate.

This *cut washed* "red tar" to remain in jar ten or twelve days.

GLUE SOLUTION.

Take 5 pounds of best-grade glue and soak in 16 quarts of rain water, allowing it to remain until the water has taken up all of the glue.

To this dissolved glue 16 quarts of rain water is added and *boiled* ten minutes. When this solution is boiling there is added between one pint and one quart of turpentine and allowed to boil five minutes longer.

This entire solution is then put aside to cool.

This glue solution, when cool, is put in a 20-gallon crock and filled up with rain water. This 20 gallons of solution is then put in a dry, warm place and there to remain until fermentation takes place.

FIFTH ACT.

When the "Glue Solution" is well fermented, which takes about one week, the entire 20 gallons is put into an 800-gallon wooden tank, in which there is about 300 gallons of rain water.

The "Cut Washed Red Tar" is put into the large wooden tank simultaneously with the 20 gallons of "glue solution."

This entire solution of something over 300 gallons is stirred up well and allowed to remain ten days, and each day is stirred several times. During the ninth and tenth days there is added, in all, about two (2) quarts of Bi-Sulphate of Carbon.

At the close of the tenth or eleventh day there is added about 500 gallons of rain water.

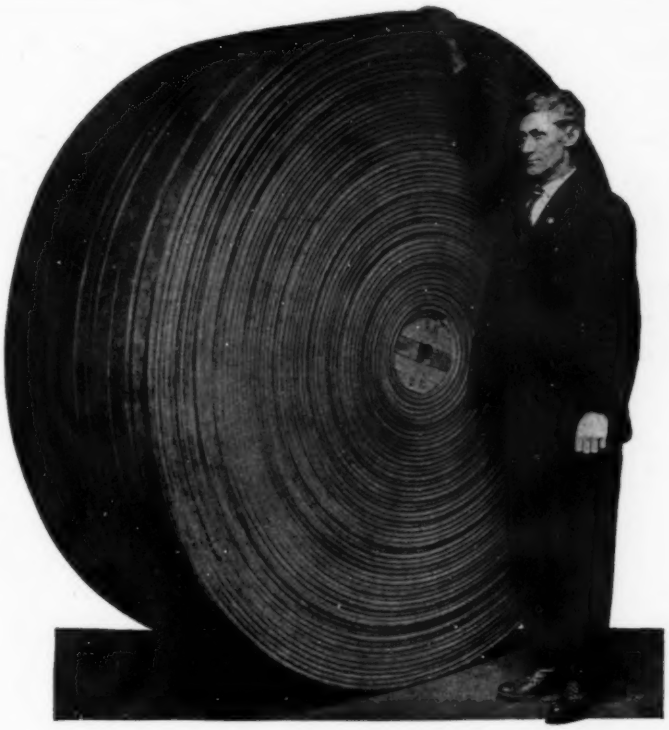
Three or four days after the 500 gallons of rain water has been added, the *rubber is to appear* at the surface of the solution as it is stirred.

This last act should take place in the sunlight, or in a building with a glass roof.

Sunshine is an important factor in the last stage.

PLANTATION RUBBER BADLY PACKED.

COMPLAINTS have been many of late, according to *Gummizeitung*, concerning the bad packing of plantation rubber, the chief count being the employment of cases that are not strong enough. This, it is needless to state, is false economy, for it is self-evident that the rubber, during protracted transportation, will suffer therefrom.



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Branch Store, No. 1810 Blake Street, Denver, Colo., where we carry a full line of goods.

Manufacturers of all kinds of rubber goods for mechanical uses—Hose, Belting, Packing, Gaskets, Bicycle Tires, Specialties, Moulded Goods, Etc., Etc.

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If you cannot get quick deliveries,
If you are not getting fair value for your money,
IN ANY EVENT,

SEND TO US FOR SAMPLES AND QUOTATIONS. . . . .
WE CAN SUIT YOU EVERY WAY.

FACTORY, GRAND AVE. & ROCKWELL STS

THE MECHANICAL RUBBER CO., 230 Randolph St., Chicago, Ill.

The Second International Rubber and Allied Trades Exhibition

LONDON, June 24 to July 15, 1911.

UNDER the wise leadership of Sir Henry A. Blake, president, and A. Staines Manders, organizing manager, assisted by an international committee of over 200 of the world's foremost rubber men, the Second International Rubber Exhibition has passed into history—"an unqualified success."

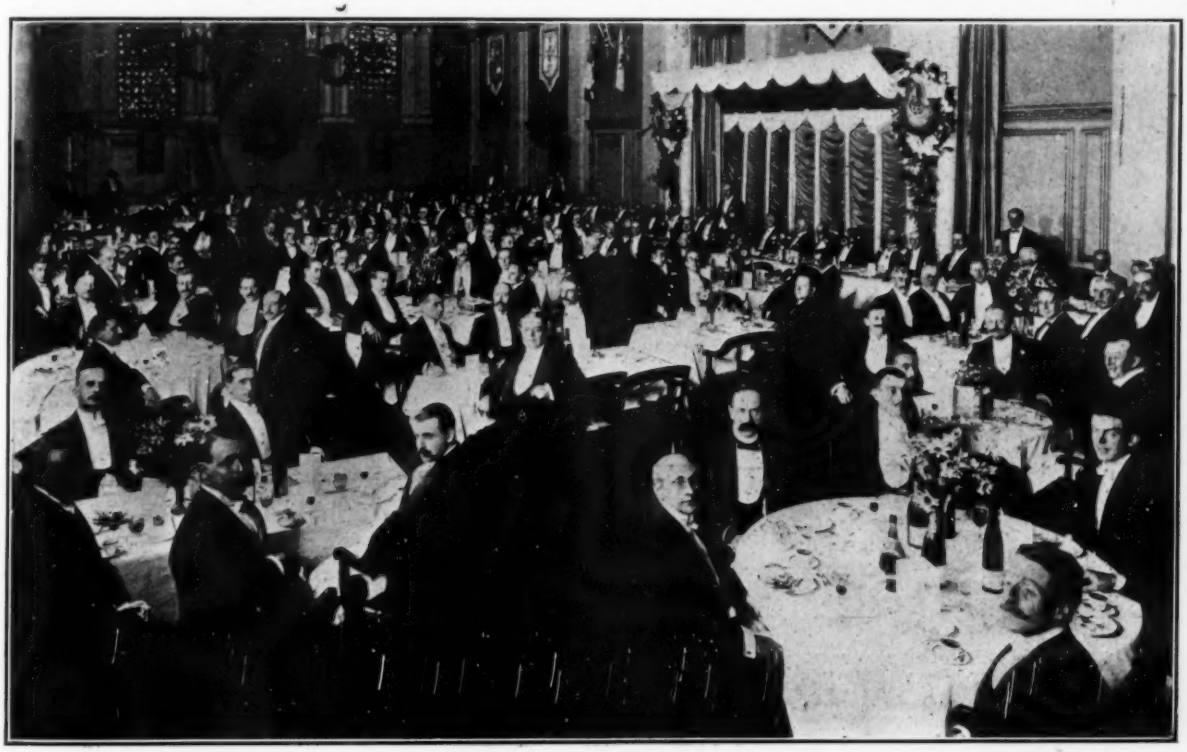
Readily accessible from all parts of the great city by underground tube, tram, omnibus and the ubiquitous taxicab, the Royal Agricultural Hall, Islington, in the northeastern section of the British metropolis, was admirably adapted, in magnitude, in convenience of arrangement, and in historical associations, to be the home of so important an exhibition.

The great interest in india rubber displayed the world over, which interest has developed marvellously since the first rubber exhibition was held in 1908, was in itself sufficient to provide a respectable patronage for the enterprise. But thanks to the daily press—more especially its most influential members—the attention of the general public was widely attracted to the exhibition, the universal employment of rubber in the home circle, the arts and industries serving to impress on the people the importance of all that the exhibition had to offer.

The cosmopolitan character of the exhibition had also its interesting side. The production of india rubber is conducted in the least known countries of the earth, inhabited to a great extent by peoples of whom we have but a superficial knowledge. From all of these came representatives of the growers and gatherers of and dealers in rubber, with specimens of their products, the implements used in collection and harvesting, and the devices employed in its preparation for market.

Under the direction of the competent executive, these exhibits were systematically grouped and arranged so that it was possible, as in a well-ordered book of reference, to turn to any section for information as to the character and quantity of its output. Supplement this with an equally comprehensive and well-arranged display of the manufacturing branches, the machinery and apparatus employed and the articles produced, all tastefully arranged in the spacious halls, artistically decorated for the occasion with bunting and the flags of all nations, and the general effect was very beautiful.

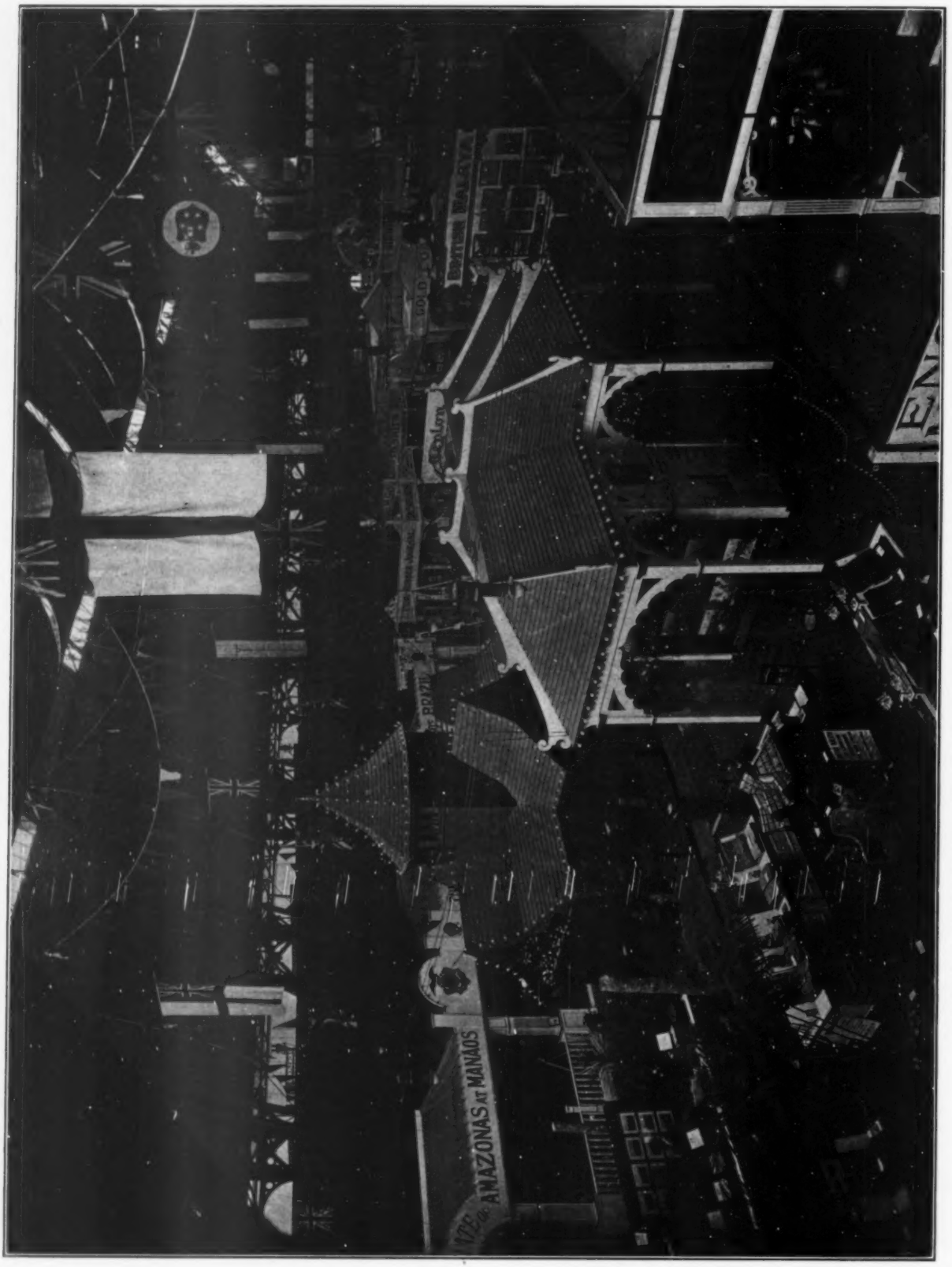
The arrangement for the comfort and convenience of visitors, for which the resources of the big building were ample, included a special room for members of the Rubber Club, a press room, a hall in which the conferences were held, committee rooms, a postoffice, telegraph and telephone exchanges, and spacious, well conducted dining, refreshment, and tea rooms.



SIR HENRY A. BLAKE, G. C. M. G., DELIVERING ADDRESS AT THE RUBBER EXHIBITION DINNER.

Special mention must also be made of the admirably arranged guide book, compiled by Manager A. Staines Manders, which, although somewhat voluminous, was so well classified and easy of reference as to materially enhance the comprehensibility of the great collection.

These, however, were but the settings of the exhibition; from the great collection of "pelles" of virgin rubber from the Amazon country, representing a value of many thousands of pounds, to the smallest tool or appliance or most insignificant map or chart, everything was displayed and classified so as to be readily accessible in the section in which it might be looked for, and in addition, a competent staff of attendants was on hand,



THE SECOND INTERNATIONAL RUBBER EXHIBITION IN THE ROYAL AGRICULTURAL HALL, LONDON, 1911.

able and willing to give the enquiring visitor every information.

At the private view to representatives of the press from all parts of the world, the excellence of the arrangements and the completeness of the exhibition, practically all of the exhibits being in place and ready for public inspection, came in for much approbation, and Manager Manders was warmly congratulated on the success of this second exhibition of 1911.

At the press lunch, at which the representatives of the press and invited guests were entertained, the menu for which was printed on a sheet of hard rubber, congratulatory speeches were naturally in order and the following telegraphic despatch was sent to King George V.:

"Sir Henry A. Blake, the President, and the Management of the International Rubber and Allied Trades Exhibition, of which Your Majesty is the Patron, the Scientists, Chemists and Manufacturers coming from all parts of Your Majesty's Dominions, and the Representatives of the numerous Foreign Governments who are officially taking part in the Exhibition and who are assembled at the Press View at the Royal Agricultural Hall today, send you hearty greetings. We most earnestly pray that you and your Royal Consort may live long and have a prosperous reign. Should Your Majesty find time to honor the Exhibition with a visit, it would give unbounded satisfaction."

His Majesty replied as follows:

"SIR HENRY A. BLAKE:

"Am commanded by the King to thank you and those who join with you for your kind message and good wishes. BIGGE."

FORMAL OPENING.

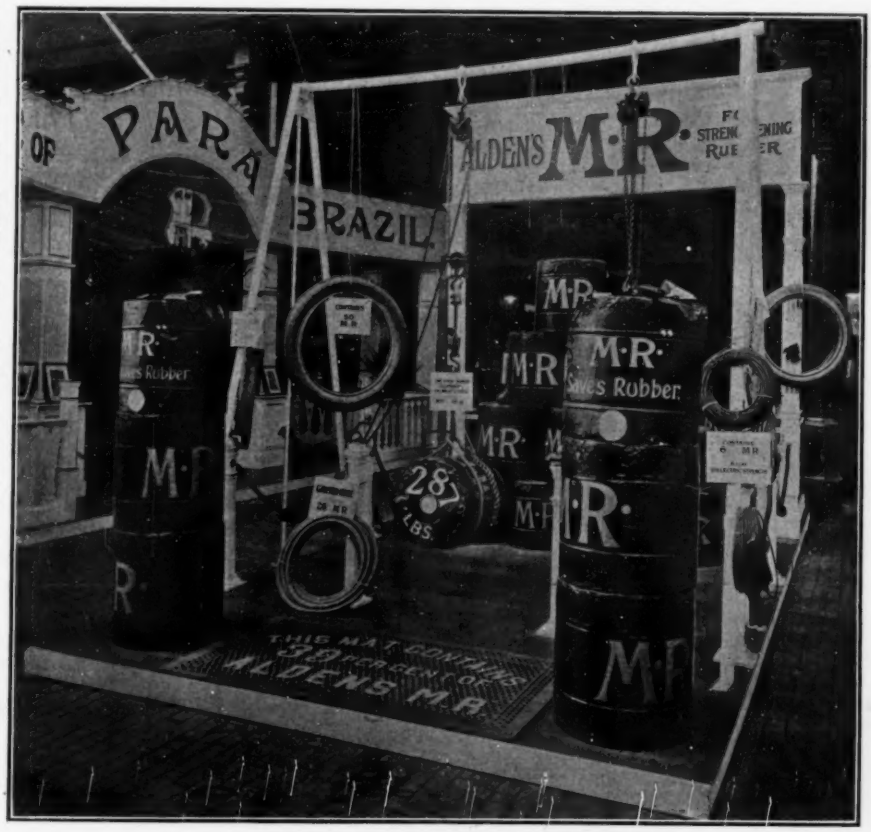
On the afternoon of June 24 came the formal opening. A large number of distinguished guests were present and a great gathering of delegates, exhibitors and visitors.

The Earl of Selborne, in declaring the exhibition open, said: "The rubber industry has been a great contribution, and will be a much greater contribution in the future, to the solution of the problem of the prosperity of some of the parts of the British Empire whose administration, from the financial point of view, has been a struggle for a good many years past. The effect of the development of the rubber industry in different parts of Africa and elsewhere, was to give these parts a degree of prosperity which they had not hitherto known. It is only quite recently that the world has begun to realise the part that rubber is going to take in the arts and manufactures of the world."

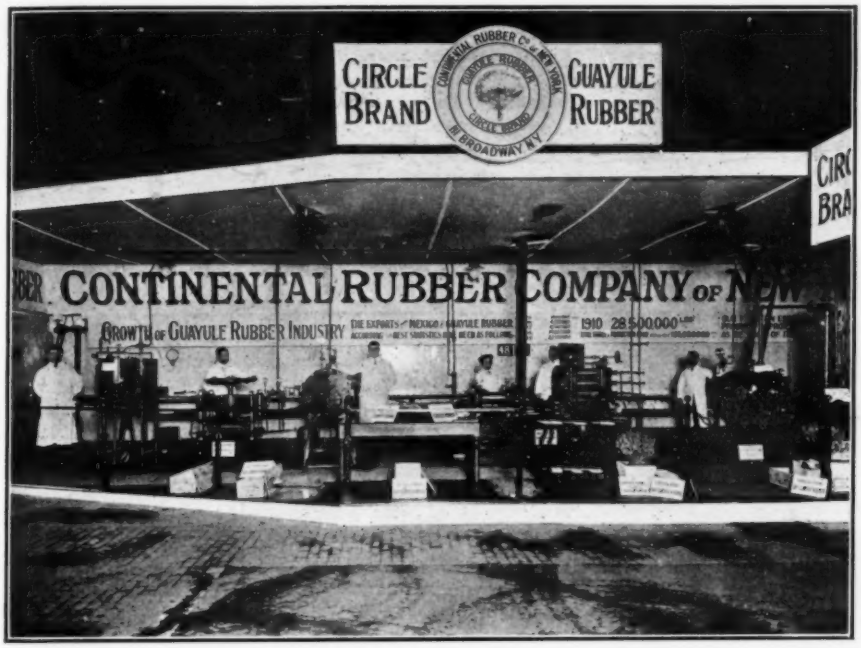
Sir Henry A. Blake, president of the exhibition, said that manufacturers were only waiting for rubber at a reasonable price to enable them to look forward to an unlimited expansion of the uses of rubber. "When that time comes," he added, "rubber will be as staple a product as wheat. The time will soon arrive when prices will be easier and rubber can be put to the purpose of street paving."

THE RUBBER EXHIBITS.

Never before has such a complete, varied and interesting collection of rubber lots and samples been placed on view. Nearly every rubber producing country in the world was represented and many showed new varieties, products, and results that exhibited much careful experimentation.


PARA
BRAZIL
ALDEN'S M·R
M·R
M·R

1. Sir Henry A. Blake, G. C. M. G., 2. Robert B. Baird. 3. E. Pollet. 4. H. S. J. Maas. 5. E. Rosling. 6. Dr. Joseph Torrey. 7. A. Bethune, J. P. 8. H. J. Lovrink. 9. L. Hoff. 10. Dr. W. R. Tromp de Haas. 11. Ed. Bunge. 12. E. E. Buckleton. 13. H. A. Wickham. 14. A. Staines Manders. 15. J. C. Harvey. 16. Marchese Alessandro Faá di Bruno. 17. Dr. H. Johannes. 18. C. J. Scott. 19. Sir William Taylor. 20. Jac. Musly. 21. George Watkinson. 22. A. G. N. Swart. 23. J. G. Von Hemert. 24. J. A. Richardson. 25. W. Stuart Gordon. 26. W. H. Hildreth.



THE WORKING "GUAYULE" EXHIBIT OF THE CONTINENTAL RUBBER CO.

Cumming, R. W. Harrison, Leonard Wray, I. S. O., and E. Mitchell.

SOUTHERN INDIA.

Eight estates only exhibited from this portion of the British Empire. Their lots of *Ceara* crepe, black and white Pará crepe, and sheet from 4½-year-old *Hevea* trees were as good as the best, and the photographs showed plantations in an excellent state of cultivation. The South India Committee is: J. A. Richardson, *Chairman;* G. L. Acworth, H. M. Knight, Henry Small, C. E. S. Chambers, H. Sime, J. C. Sanderson, D. G. Macforlane, G. Croll, Erroll Sinclair, L. E. Kirwan, D. McArthur, R. L. Proudlock, R. L. Gudgeon, J. A. Harris, G. Romilly, J. Weymouth and H. P. Hodgson.

BRITISH AFRICA.

From the British East Africa Protectorate came samples of *Ceara* rubber from several plantations, together with samples of vine rubber from two *Landolphias*, M'goa rubber from a *Mascarenhasia*, and a great variety of beans used as catch crops. There was also a magnificent collection of photographs showing plantations, government farms and African scenery.

From the Uganda Protectorate were sent scrap, biscuit and crepe from *Hevea*, *Manihot*, *Funtumia*, a *Landolphia* and a *Clitandra*. There were also shown bottles of latex, seeds of rubber trees, sections of rubber tree trunks, lianes, and fruits and flowers of the *Funtumia*.

From the Gold Coast came samples of ordinary African rubbers as they appear in the trade; specimens of cultivated rubber from *Heveas*, *Funtumias*, *Manihots*, *Landolphias* and *Ficus*, the samples prepared by various methods. There were also bottles of latex from all of their rubber yielding trees, seeds, herbarium specimens, trunks of trees, latex cups, tapping tools and photographs.

Those to whom the credit for the very informing exhibits are due are: *Commissioner*, H. Powell, Chief, Economic Plant Division of the East Africa Protectorate. *Commissioners*, Francis Crowther, Secretary for Native Affairs; W. S. D. Tudhope, Director of Agriculture of the Gold Coast Colony, and *Commissioner* R. Fyffe, Ag. Superintendent of Forests, of Uganda.

BRITISH GUIANA, TRINIDAD AND TOBAGO, JAMAICA AND THE WEST INDIES.

Balata, rubber from *Sapium Jenmani*, and from planted *Hevea Brasiliensis*, excellent samples, covered the rubber exhibit of this colony. There was, in addition, many fine photographs and special publications that explained in detail almost anything one would desire to know concerning the resources of the country.

Trinidad furnished samples of rubber *Castilloa* and *Hevea*, together with seeds, plants, latex tapping tools, machines, diagrams of rubber production, photographs and herbarium specimens.

For Jamaica, John Barclay, Secretary of the Permanent Exhibitions Committee, sent specimens of plantation rubber and photographs.

From Dominica, Joseph Jones, Secretary of the Permanent Exhibitions Committee, sent samples of rubber, bottles of latex and fine herbarium specimens.

DISPLAY OF "AMAX" AT THE RUBBER EXHIBITION.

The commissions and committees were:

Trinidad and Tobago—*Commissioners,* Prof. P. Carmody, F. I. C., F. C. S., Director of Agriculture, Trinidad; A. E. Aspinwall, Secretary, The West India Committee. British Guiana—*Commissioner,* F. A. Stockdale, B. A., F. L. S., Assistant Director and Government Botanist. Jamaica—*Commissioner,* A. E. Aspinwall.

BRAZIL.

The State of Pará exhibited a remarkable collection of its own rubbers, embracing in fine and coarse, Islands, Caviana, Yary, Xingu, Tapajos, Cameta. Fine and "weak" rubber from the Trombitas, "weak" from the Tapajos, "weak" from the Gurupy, Caucho block and strip, "Muriputa" from a *Sapium,* and smoked Islands Fine; Danin and Mellos smoking machine with rubber prepared by it. Pintos, "Lactina," Coutinhos specially prepared Pará rubber, etc.

The Musée Goeldi showed herbarium specimens of leaves and flowers of the principal rubber trees of the lower Amazon, including thirteen varieties of *Hevea,* a *Castilloa,* two *Sapiums,* one *Hancornia* and one *Landolphia.*. Also a fine collection of *Hevea* seeds, stands of palms that furnish nuts for smoking. Photographs of rubber tapping and coagulating and a map of the State of Pará, showing rubber distribution.

The commercial association at Manaos exhibited 385 large pelles of Fine, and 91 balls of Caucho, samples of Amazonian rubber prepared as it is in the Middle East. This was supplemented by the most interesting collection of native-made rubber shoes, ponchos, pouches and toys ever assembled.

A most interesting exhibit from Southern Brazil was that of Ceara rubber from the *Manihot Dichotoma,* a rubber producer with a future.

Those who arranged the exhibits were:

Federal Government of Brazil—*Commissioner,* Dr. J. P. Lacerda. Amazonas—*Commissioner,* Senor Emilio Zarges, First Vice-President Associacao Commercial do Amazonas; *Delegates,* F. Alves Vieira, Consul General for Brazil in London; W. Gordon, Manager, Associacao Commercial do Amazonas, and William Harvey Mildreth. Pará—*Commissioner,* Dr. J. Huber (Musée Goeldi).

MEXICO.

The Intercontinental Rubber Co. established a miniature rubber factory for the purpose of showing modern methods of utilizing their guayule rubber. Needless to say, the exhibit was thronged by those interested.

La Zacualpa and one of its affiliations in *Castilloa* planting, showed smoked sheet, and blocked rubber coagulated in a centrifugal; also trunks of four and six-year-old trees, tapping knives, machetes and botanical specimens.

NETHERLANDS.

That the Government of Holland takes a vital interest in rubber and gutta-percha was abundantly attested in a host of ways in connection with the Exhibition. For example, its bureau for India prepared elaborate graphic charts, showing the exports of balata from Dutch Guiana for the last ten years—the area of planted rubber in the Dutch East Indies since 1907—the number of rubber plantations in all of their East Indian Colonies, the capital invested, and the location of the plantations. The same bureau showed experimental and laboratory machinery, tests of the elasticity of rubber and much more of a very practical nature.

All of the rubber manufacturers of Holland had their wares on exhibition and an excellent showing they made. The crude rubber houses in Amsterdam and Rotterdam also showed samples of rubber, gutta and balata.

The Dutch steamship lines and chemical and export houses also were represented by samples, photographs and charts.

All of the above was most interesting, but it was over the real crude rubber exhibits that one lingered longest.

Surinam showed balata sheet and block. Plantation rubber from *Hevea Brasiliensis,* and from the *Castilloa.* There were also samples of *Hevea Guyanensis* rubber. Then, too, there were shown sections of balata trees, young *Guyanensis* and many photographs. As a supplement to this, the Colonial Museum at Haarlem exhibited its own very complete collection of Surinam rubbers.

From some 150 rubber planting estates in Java, Borneo and Sumatra were assembled a great mass of rubber samples. They embraced *Hevea, Ficus* and *Castilloa,* and were as good as the best.

The Netherland India Committee, by maps and charts, by a collection of white ants, nest and cells, by specimens of *Hevea* trees diseased, badly tapped, by many rubber samples, gave a graphic representation of some of the actualities of rubber planting.

From the great Government rubber and gutta-percha plantations came samples of various rubbers and guttas coagulated in a score of different ways.

Associations of lease holders, rubber planters' associations, agricultural societies and rubber planters' unions—all from the Dutch possessions in the East—furnished rubber samples, soil samples, plant samples and photographs. All kinds of coagulation appeared from air-drying to fluoric hydrogen.

The whole Netherlands exhibition was under the direct charge of A. G. N. Swart, Ll.D., president; H. S. J. Maas, honorary president, Dr. Tromp de Haas, commissioner for the Dutch East Indies, and the following committee members: Jac. Musly, J. G. von Hemert, K. H. H. van Bennekom, Ch. Moens, B. Bakker, Dr. A. H. Berkhout, S. P. van Efghen, Prof. Dr. S. Hoogewerff, Prof. Dr. G. van Iterson, Jr., K. F. Katz, J. Merens, E. P. de Monchy Rzn, J. Pompe, Prof. Dr. P. van Romburgh, A. Slingervoet Ramondt and Prof. Dr. F. A. F. C. Went.

GERMANY.

German East Africa, German West Africa and the German South Sea possessions assembled samples of rubber that showed, at its best, Teutonic thoroughness, knowledge and enterprise. There were some 350 lots of rubber, partly from Governmental institutions, but mostly from some sixty plantations. They embraced the three *Manihots,* coagulated by oxalic acid, by a mixture of carbolic and acetic, by extract of Adanzonian fruits, by tamarind fruits, by salt, acetic and carbolic acid, by "Purub," smoked and unsmoked. There were *Castilloa* samples smoked, *Landolphia* rubbers coagulated by salt solutions, *Kickxias* air-dried, etc., etc., the results of hundreds of experiments. The Imperial Biological Institute at Amani, furnished much, the planters much, and the natives, under German control, sent in their samples of cultivated rubber and showed crude utensils of forest manufacture.

But remarkable as was the German Colonial exhibit, that of the Prussian Royal Testing Office would appeal to the rubber manufacturer more certainly. There were grouped sixteen machines, most of them new, for a variety of rubber tests. Several were specifically for testing the resistance, calorific transmission, and gas permeability of balloon fabrics. There was also the Schopper-Dalen new type of tensile tester, Hinrichsen's simplified apparatus for the electrolytical determination of sulphur in rubber, Laurent's apparatus for estimating the polarisation angle, Gasparini's apparatus for determining the sulphur-content of rubber, Martens-Schopper extensometer, Martens ball-pressure hardness tester, Martens fatigue tester, and Mail's machine for the abrasion test.

Five of the great German rubber manufacturers exhibited full lines of manufactured rubber goods. There were also excellent exhibits of German-made rubber machinery, of special chem-

icals used in rubber compounding, of reclaimed rubber, etc. For the chemical laboratory, Dr. Marckwalk and Dr. Frank exhibited new apparatus as follows: a centrifugal for rubber analysis, and a viekosimeter for solutions.

The German Committee were:

President—Dr. Golinelli, Privy Councillor of Legation. Official Members—Dr. Lewald, Privy Superior Councillor of Government; Mr. Goetsch, Privy Councillor of Legation; Dr. Busse, Councillor of Government. From the "Ständige Ausstellungskommission für die Deutsche Industrie"—Mr. Goldberger, Privy Councillor for Commerce, President; Dr. Kramer, Professor; Count von Schweinitz; Dr. Heiman, General Secretary. From the "Kolonial-Wirtschaftliche Komitee"—Mr. Ladewig, Director (President, Union of Planters, Kamerun); Dr. Friedrich Supf; Dr. Warburg, Professor; Mr. Warnholtz, Director (President, Union of Planters, East Africa); Mr. Besser, General Secretary. From the "Centralverein Deutscher Kautchukwaren-Fabriken"—Mr. Hoff, General Director; Mr. Seligmann, Councillor for Commerce; Mr. Spannagel, General Director; Dr. Soetbeer, General Secretary. General Commissioner in London—Dr. H. Johannes, Consul-General for Germany.

BELGIUM.

Royalty was much emphasized in the striking exhibits of the Belgian section. There was the "Honours Room," with its water-color portraits of the King and Queen; the "Queen's Flower" charity; the sale of "Edelweiss," the proceeds to go toward ameliorating the ravages of sleeping sickness, and other charitable work prosecuted by the Belgian rulers in the Congo.

The Ministry of Colonies had prepared a rubber-growing chart of the Belgian Congo, showing planting results from the *Manihot Glaziovii* and the *Funtumia*. They also showed samples of rubber coagulated by a new process. There were maps, photographs and curios.

Perhaps the most graphic presentments were the dioramas, representing rubber planting in the Belgian Congo, and a forest of rubber lianes.

Various steamship lines, Congo railways, commercial companies, and great rubber trading companies, such as the "Kassai," were exploited by means of rubber samples, maps, photographs and charts.

The rubber section of the Antwerp Chamber of Commerce furnished a notable exhibit of rubber samples, eighty in number, all classified and labelled. There were also samples of rubber and photographs from the great rubber plantations owned by Belgians in the Malay States, Java and Borneo.

COMMITTEE FOR BELGIUM.

The Honorary President was M. Jules Renkin, Minister of the Colonies, while the Honorary Vice-Presidents included Count de Baillet-Latour, Governor of the Province of Antwerp; Mons. de Vos, Burgomaster of Antwerp; Mons. Francotte, President of Belgian Foreign Exposition Committee, and Colonel Thys, Administrator of the "Colonialasa" Company. The Acting Presidents were Ed. Bunge, President of The Antwerp Rubber Planters' Association, and E. Pollet, Consul-General of Belgium, London; the Acting Vice-President being N. Arnold, Director-General of the Colonial Ministry, Brussels. R. Ehrhardt, Secretary of the Antwerp Rubber Planters' Association, filled the post of Secretary-Treasurer, and L. Osterrieth, member of the Antwerp Rubber Planters' Association, that of Secretary.

In addition to the above-named officials, the body of the Committee, consisting of thirty-four members, included: the Duke of Ursel, Government Commissioner at the recent Brussels Exposition; G. Albrecht, Sheriff of Antwerp; Ch. Corty, President, and W. Van der Welde, President of Rubber Section, Antwerp Chamber of Commerce; Mons. de Schamphelare, Vice-President of Syndicate Chamber, Ghent; H. de Wildeman, Conservator of Brussels Botanical Garden; L. Strauss, President of the Higher Council of Industry and Commerce; O. Englebert, President of Syndicate Chamber of Rubber Manufacturers, Liège, Mons. Jenatzsky, manufacturer, Brussels; Mons. C. Olyff and Mons. Smeyers, Directors in the Belgian Ministry of the Colonies; and Baron A. de Haulleville, Director of the Belgian Congo Museum.

Various commercial bodies were represented upon the Committee by groups of members. Prominent among these organizations were: Belgian Colonial Societies, ten members; Rubber Planters' Associations, Antwerp, seven members, Brussels, two members; Ghent, one member.

Count van der Burgh, General Secretary, and Mons. Bogaarts, Treasurer of the Belgian Foreign Exposition Committee, were members of the General Committee.

FRANCE.

(French Tropical Possessions.)

The Governments of Madagascar, of the French Congo and of French Cochin-China sent in very interesting samples of crude rubber and a notable collection of photographs. Two French planting companies, one in Cochin-China and one in the French Congo, also exhibited samples of *Funtumia* rubber. That from the French Congo was prepared by a hot-water process. They also showed maps of the plantations and many views.

(French Manufacturers.)

Three large rubber manufacturers showed mechanical rubber goods, insulated wire, hard rubber, tires, footwear, rubber sundries, clothing and smaller specialties.

(French Machinery.)

One of the most interesting of the machinery exhibits was the "Olier" machines for general rubber work. There were new profiling calenders, mixing machines, vertical spreaders, tire wrapping and unwrapping machines, presses for shaping and curing tires, etc.

(The French Committee.)

The Honorary President was the French Minister of the Colonies, while the Honorary Vice-President was the French Consul in London. The Committee was composed of forty-three members, twelve of whom formed an executive board, including the following officials: A. Haller, Member of the French Institute, President; Mons. Augagneur, ex-Governor of Madagascar, and Mons. Lamy-Torrilhon, President of the Syndical Chamber of Rubber Manufacturers, Vice-Presidents; A. D. Cillard, manufacturer, Director of *Le Caoutchouc et la Gutta Percha*, General Secretary; Dr. Paul Colin, advocate, and Count Louis de Clercq, engineer, Assistant Secretaries; O. Dupuy, delegate of the Indo-China Rubber Planters' Association, Treasurer.

In addition to the above officials, the Board included: Dr. Chautard, Administrator of the Parisian Industrial Rubber Co.; Mons. Paris, Deputy from Cochin-China; Mons. Grellou, manufacturer; O. Labroy, Chief of the Museum of Natural History, and P. Breuil, consulting engineer, Editor of *Le Caoutchouc et la Gutta-Percha*.

In the general body of the committee, consisting of thirty-one members, were eleven professors and other academic experts, ten representatives of manufacturing and importing interests and ten members of an official character. Prominent among these ordinary members were the Governors-General of Western Africa, Indo-China and Madagascar; the Chamber of Commerce, Paris; the French Chamber of Commerce, London; the Professional Syndicate of Rubber and Gutta-Percha; the Syndical Chamber of Elastic Fabric Manufacturers; Mons. Sée and Baron F. de Wissocq, Administrators of the "Etablissements

Hutchinson," as well as Mons. Mougeot, President, and M. Roger Noguès, Director General of the Société Sangha-Oubanghi.

ANGOLA, PORTUGUESE WEST AFRICA.

From this colony were shown samples of *Ceara* rubber from the *Glaziovii* and the *Jequie*, tapping utensils employed and photographs, the exhibits being from Portuguese estates. The Commercial Association of Loando, also exhibited fine photographs of rubber plantings.

CRUDE RUBBER.

The Imperial Institute, London, furnished a graphic summary of the rubber resources of the whole British Empire. Twenty-eight countries were represented, and for all of them statistics, photographs and samples of rubber were shown.

Four of the dock companies, who store so much of the world's rubber, exhibited photographs of their warehouses and vaults.

There were also exhibits arranged by rubber share brokers, a crude rubber washing company, and the British Murac Syndicate, Limited.

As synthetic rubber is to be classed as crude rubber, the notable exhibit of the Caoutchouc Syndicate should be mentioned here. They interested many by converting Isoprene into rubber before a committee of experts. What the Isoprene cost did not appear.

SUPPLIES FOR RUBBER MANUFACTURERS.

Three companies showed almost every type of compounding ingredients, and rubber substitutes. There were also coagulating chemicals, and a notable exhibit of canvas for general mechanical rubber use.

RECLAIMED RUBBER AND MINERAL RUBBER.

With the Northwestern Rubber Co., Limited, the Rubber Regenerating Co., Limited, and the British Recovered Rubber Co., Limited, as exhibitors, this very necessary adjunct to crude rubber was well represented.

Mineral rubber also came in for much attention, the three exhibitors, A. H. Alden & Co., Limited, The American Wax Co., and the Canadian Mineral Rubber Co., all showing many informing samples.

MANUFACTURED RUBBER GOODS.

English manufacturers who exhibited were few in number, but the exhibits were very comprehensive. The goods shown covered almost every ordinary use of rubber. Notable parts of the exhibits were the cinematograph show of the North British Rubber Co. Much interest also attached to the working exhibit of the Premier Reforming Co., who made waste rubber directly into goods without devulcanization.

A Japanese rubber factory also showed elastic webbings for aeroplanes, of their own make.

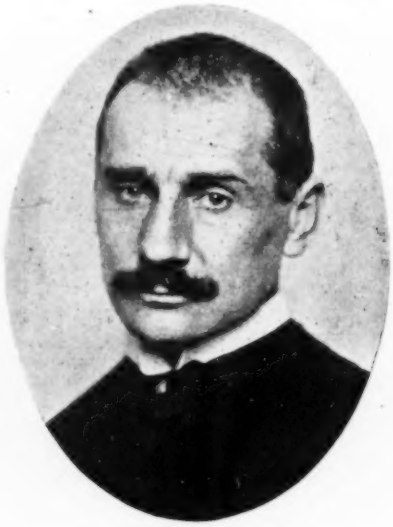
RUBBER MILL AND PLANTATION MACHINERY.

There were no less than twenty-five exhibitors of rubber machinery of English production, of which David Bridge & Co., Limited, had the most complete assemblage. The exhibits embraced washing, creping and blocking machines, coagulators, centrifugals, smoking and drying ovens for plantation work, a large line of regular rubber machinery, together with latex carts, tapping devices, latex cups in glass, aluminum, salt glazed ware, and so on, *ad infinitum*.

Of American concerns showing rubber making machinery were: The Farrel Foundry & Machine Co., The Birmingham Iron Foundry, Hohman & Maurer, Bramhall, Dean & Co.

HERBERT WRIGHT,
Editor, *India Rubber Journal*, London.

HENRY C. PEARSON,
Editor, *The India Rubber World*, New York.



GEORGE SPRINGER,
Editor, *"Gummi-Zeitung*, Berlin.

THE RUBBER CONFERENCE.

Sir Henry A. Blake, G. C. M. G., opened the conference by reviewing briefly rubber growing the world over, stating that the acreage had doubled since the last exhibition. He spoke of synthetic rubber as something that for the present would probably not be manufactured commercially.

It was really a series of conferences at which various essays were read followed by most interesting discussions. As the papers are to form the subject of a special publication later, we here give only the titles of the essays and the names of the authors, and a very brief explanation of the subject matter.

"Rubber and Balata Industries of British Guiana." F. A. Stockdale, B. A., F. L. S.

Mr. Stockdale, in his paper, demonstrated the British Guiana government's progressive policy in establishing many branch experiment stations of the Department of Science and Agriculture. In practically all the most important districts of the colony these experiment stations are already definitely established or are in the making. The trials with *Hevea* at the experiment stations and on numerous private properties throughout the colony have shown that excellent growth is obtained practically all over the colony. He also covered the *Sapium Jenmani* in its natural habitat and under cultivation, and explained cultivation and its yield.

Turning from rubber the lecturer gave particulars of the balata industry which were most complete and interesting.

"African Vine Rubber." G. van den Kerckhove, consulting india rubber expert, Brussels.

Mr. van den Kerckhove in his paper pointed to measures taken against adulteration of indigenous rubbers; spoke of adulteration in the Congo, and of stringent laws which in time resulted in stamping out frauds. He said that during "boom times" in crude rubber things began to drift back to their former state, but that a royal decree had put an end to that trouble.

A. D. CILLARD,
Editor, *Le Caoutchouc et La Gutta Percha,* Paris.

DR. WERNER ESCH,
Editor, *Gummi Markt,* Hamburg.

H. HAMEL SMITH,
Editor, *Tropical Life,* London.

"Theory of the Vulcanization Process." Prof. D. Hinrichsen, permanent member of the Royal Department for Testing Material, Berlin.

Dr. Hinrichsen spoke of the two theories, explaining the phenomena of vulcanization, one chemical and the other physical. He described the latter as the newer, and held that the taking up of sulphur by rubber was an exclusively surface action. He also reviewed the experimental evidences relating to both theories.

"Rubber Plantations in Cochin China." M. André Cremazy.

M. Cremazy covered French Cochin China very thoroughly. *Hevea Brasiliensis* is doing remarkably well, one company alone possessing 200,000 trees. So far the *Hevea* trees are free from disease of any kind, said the lecturer, and labor was very easily obtainable; the government regulations most favorable to planters.

"The Viscosity of Rubber and Its Solutions." Philip Schidrowitz, Ph. D., F. C. S., and H. A. Goldsbrough, A. T. C., F. C. S.

Dr. Schidrowitz and Mr. Goldsboro added to what they have already written on the viscosity of rubber solutions, giving many examples of experiments on plantation *Hevea* and *Funtumia.* They found in deresinated rubbers an increase in viscosity, as indeed would be expected. The practical value of these tests are that within the same species viscosity measurements give a direct line as to strength, general conditions and vulcanizing capacity.

"Rubber in Uganda: Retrospective and Prospective." R. Fyffe, Esq., assistant in Botanical Forestry and Scientific Department, Entebbe, Uganda, and E. Brown, F. L. S. (Joint papers.)

Rubber in Uganda, by Mr. R. Fyffe, covered an increase in exports: in the consideration of three native species—*Funtumia,* a *Landolphia* and a *Clitandra,* and where they grow, and the tapping of wild vines and coagulating by boiling. Funtumia shows no wound response and will stand three to four tappings a year, the herring bone being the best. Trees may be tapped to a height of 20 to 30 feet. The "V" knife is generally used, but a pricker is advised. Results are disappointing, five to six ounces of dry rubber per year being the average yield. Ceara rubber shows up well; it is tapped after removing the outer bark, smearing the tree with a coagulant and using a pricker. Twenty three-year-old trees yielded 27 ounces of dry rubber. The first Pará tree tapped, a seven-year old, yielded 16 1.2 ounces dry rubber; 118 Hevea trees, five months old, yielded 50 pounds dry rubber. These trees were 20½ inches in circumference.

"The Hygienic Conditions and the Maintenance of Health in the Rubber Planting Districts of the Tropics." W. Carnegie Brown, M. D., M. R. C. P., 32 Harley street, W.

Dr. Brown suggested much of value as far as laborers are concerned. For a white man going to the tropics he affirmed he must be mature, have no alcoholic tendencies, nor tendency to insanity; must be scrupulously clean, careful of what he eats and drinks. Believes that malaria and similar diseases could be easily avoided or combated.

"The Rubber Trees of Africa, Their Cultivation and Exploitation." Dr. E. Wildeman.

Dr. Wildeman described native methods of collecting vine rubber. He said that cutting the vine off did not kill it, for it reproduced itself. He also suggested that mechanical treatment of vine sections might be possible, and believes that the cultivation of vines in Africa will yet be accomplished

"Discovery of the Pará Reagent." Wilhelm Pahl, Dortmund.

Herr Pahl spoke of smoke coagulation and carbonic acid. Criticised the use of acetic acid and described the apparatus for coagulating large quantities of latex by the use of carbonic acid. He also stated that his firm had patented this use of carbonic acid all over the world and was prepared to defend their right.

"Rubber Trees of the Amazon." Dr. J. Huber, Pará, Brazil.

Dr. Huber covered chiefly the rubber reserves of the Amazon. He believes that the rubber tree of the lower Amazon is the

ered a notable address on the sweeping reforms in the Belgian Congo. He affirmed an absolute abandonment of the working of estates by monopoly; the native's right to gather rubber with no tax. His ability to sell at market price wherever he wishes. Foreign settlers can occupy any tract not already leased; can buy of the native or collect rubber by their own labor. He proclaimed the method of government as "free trade by free labor."

Mr. Clayton Beadle described a new method of testing rubber by using the energy of a falling pendulum. He suggested it as a quicker and easier way of testing than any now in use.

Dr. Henry Stevens in his paper on raw rubber tests devoted himself very largely to results obtained by Professor Schwartz's hysteresis machine, illustration and description of which appears in another column.

Mr. H. Hamel Smith's paper covered chiefly the labor question, particularly in the Malay States. He figured that a million laborers were needed for the Malay States and as many more for

"THE INDIA RUBBER JOURNAL" TROPHY.

"THE INDIA RUBBER WORLD" TROPHY.

"GREMER'S RUBBER NEWS" TROPHY.

Brasiliensis, while that of the northern regions is the *Benthamiana*, which produces a rubber nearly equal to the *Brasiliensis*. He predicted a considerable increase in the quantity of rubber from the lower Amazon.

"Some Diseases of *Hevea Brasiliensis*." E. Mitchell.

Mr. Mitchell covered *Hevea* diseases very thoroughly. The white ant, canker, leaf, bark and root diseases were discussed very thoroughly and remedies suggested.

"Tapping Experiments on Pará Rubber Trees." Dr. Tromp de Haas.

Dr. Tromp de Haas explained *Hevea* tapping experiments in Java which were very complete, and advised that the largest quantity of rubber was collected from trees that were tapped every day.

"The Para (*Hevea*) India Rubber Trees in the East." H. A. Wickham.

Mr. Wickham in his essay objected strongly to close planting and clean weeding, and brought on an exceedingly spirited discussion by so doing.

Following the Belgian reception Monsieur M. Wendelen delivCeylon and other parts of the East. He suggested new plans for their health and comfort.

"Present Condition of the India Rubber Question in West Africa" (with photographed illustrations). M. Auguste Chevalier, explorer, doctor of science, professor in the Paris Museum.

"The Crude Rubber of Peru." Dr. Emilio Castre, of Peru.

"Mechanical Preparation of the Rubber in the Factories." M. Boutarie.

"Some Notes on the Agglutination of Rubber Corpuscles." Hermann C. T. Gardner, F. C. S., M. P. S., analytical and consulting chemist, 45 Caterham road, Lewisham, S. E.

"The Constituent Parts of *Parthenium Argentatum*, the Original Guayule Caoutchouc Plant." Dr. Paul Alexander.

"Mechanical Rubber Tests." Herr Memmler Dipl. Ing.

"Notes on Pará Rubber Cultivation." Walter Fox, late Superintendent Forest and Gardens, S. S.

"Centrifugalization of Rubber." D. S. Smith, Tobago.

"Remarks on the Chemical Analysis of Raw Rubber." J. G. Fol, Chemical Engineer to the Dutch Government.

An important meeting of the International Rubber Testing Committee was held, Dr. A. H. Berkhout presiding. After the reports of the committees, a plea for the universal standardization of rubber, it was announced that Professor Huber expected to form a branch of the society for Brazil.

IMPORTANT DINNERS.

Among the important dinners incidental to the exhibition were the West India dinner, given by the West India Committee at the Agricultural Hall; the international banquet, held at Connaught Rooms, and the Netherlands banquet, held in the Whitehall rooms of the Metropole Hotel.

The feature of the International Banquet was the presentation of a check for $5,000, and an address to Mr. H. A. Wickham, the pioneer of the rubber industry in the East, by the Rubber Growers' Association. There was also given him an annuity, purchased with another $5,000. There was presented to the representative of Kew Gardens an elegant piece of silver plate.

THE WEST INDIA COMMITTEE TROPHY.

THE ASSOCIATION OF DES PLANTEURS DE CAOUTCHOUC TROPHY.

THE PRESIDENT'S TROPHY.

TROPHIES.

A notable feature in connection with the exhibition was the offer of a number of valuable trophies as awards for special achievements in the various branches of the rubber interest. For these there were some 200 contestants. The conditions of competition were simplified as far as possible so that no entry might be barred by red tape or informality. No entrance fee was required, the only condition being that entries were required to be in hand by a certain date. The trophies were as follows:

The President's Trophy, a handsome silver cup presented by Sir Henry A. Blake. (1) To the manufacturer showing the greatest variety of articles made from rubber, or it may be for one article only; (2) or to a manufacturer of machinery or for some labor-saving device that would benefit manufacturers or planters; (3) or for some simple invention of great value to all connected with the rubber industry; (4) or to the exhibitor of some article which demonstrates how largely rubber may be used for general and commercial use in a way hitherto unknown.

The Rubber Growers' Association, London, gold, silver and bronze medals for the best samples of plantation and other rubber from any country.

The India Rubber Journal, London, a silver shield, showing natives tapping plantation *Hevea* trees, value 100 guineas [=$500], for the best sample of plantation Pará rubber shown at the exhibition.

Grenier's Rubber News, Federated Malay States, silver trophy, value 25 guineas [=$125], for the best sample of commercial plantation rubber grown in the Federated Malay States or Ceylon.

THE INDIA RUBBER WORLD, New York, trophy valued at $1,000, for the best system of extracting latex from the *Castilloa elastica*, without permanent injury to the tree. A silver cup, the stem representing the trunk of a *Castilloa elastica*, terminating at the top in a crown of the characteristic foliage of this species, that supports a vase, of graceful form and suitably inscribed. Beside the trunk of the tree stands a man, with a machete in one hand and calabash in the other, tapping the tree in the destructive fashion practiced by wild rubber gatherers.

The Association des Planteurs de Caoutchouc trophy, a handsome silver bowl, value 50 guineas [=$250], for the best sample of plantation rubber grown in the Dutch East Indies.

The West India Committee trophies. Two solid silver cups, of attractive design, for competition by West Indian exhibitors. (1) For the finest prepared sample of plantation rubber of any species; (2) for the best specimen of balata.

The gold medal of the Kolonial Wirthschaftliches Komitee, for the best process and method of extracting, coagulating and preparing rubber from *Manihot, Kickxia* and *Ficus*.

The awards were as follows:

PRESIDENT'S TROPHY.

Silver Cup—
Harburg and Vienna India Rubber Company.

RUBBER GROWERS' ASSOCIATION.

Special Gold Medal—
Associacao Commercial do Amazonas, Manáos, Brazil.

Gold Medals—
Classes 1, 2, 3—Highlands and Lowlands (Pará) Rubber Co.
Class 1—Sunnygama (Ceylon) Tea Estates Co.
Class 4—Galphele Tea and Rubber Estates, Limited.

Silver Medals—
Class 1—Selangor Rubber Co.
Class 2—Tremellye Rubber Co.
Class 3—Seafield Rubber Co.

Bronze Medals—
St. George Rubber Estates, Limited.

Bukit Rajah Rubber Co., Limited.
Batu Caves Rubber Co., Limited.

Highly Commended—

Class 1—Sumatra Para Rubber Plantations, Limited.
Federated Malay States Rubber Co., Limited.

Commended—

Class 1—Rosehaugh Tea and Rubber Co., Limited.
Ceylon Tea Plantations Co., Limited.
Daranakande Rubber Estates, Limited.
Kintyre Tea Estates Co., Limited.
Class 2—Rembia Rubber Estates, Limited.
Class 3—Gikiyanakande Estate.

INDIA RUBBER JOURNAL.

Silver Shield—
Samples still under examination.

GRENIER'S RUBBER NEWS.

Silver Trophy—
Samples still under examination.

INDIA RUBBER WORLD.

Silver Cup—
Award not made, as conditions were not fulfilled.

ASSOCIATION DES PLANTEURS DU CAOUTCHOUC.

Silver Bowl—
Société de Cultures, Nieuw Tjasalak, Java.

WEST INDIA COMMITTEE.

Solid Silver Cup—
Rubber—
Mr. Hodgson, Plantation Noitgedacht, British Guiana.
Balata—
Consolidated Rubber and Balata Estates, British Guiana.
Botanic Exhibit—
Department of Agriculture of Trinidad and Tobago.
West Indian Comprehensive Exhibit—
Permanent Exhibition Committee of Trinidad and Tobago.

KOLONIAL WIRTHSCHAFTLICHES KOMITEE.

Gold Medal—Not awarded.

Honorable Mention—
Kickxia rubber—Dr. Fickendey.

Specially Commended—
Kickxia rubber—Dr. Christy.
Ficus elastica—Herr Preuss.

Highly Commended—
Manihot glasiovii—Mr. V. Lommel.

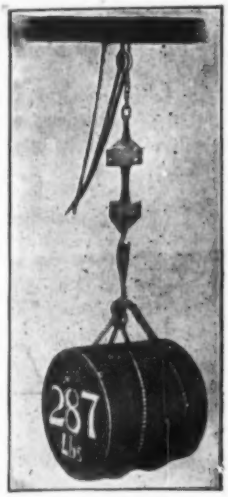
Dr. Joseph Torrey, of the Northwestern Rubber Co., Limited, was presiding officer at a number of the conferences and proved himself a master of the art.

Quincy Tucker, of Boston, who is connected with a rubber planting company in British Guiana was one of the visitors to the International Rubber Exhibition. He represented there a Demerara newspaper very successfully.

The exceedingly capable organizer who made the International Rubber Exhibition such a success is at work upon a Cotton, Fiber and Allied Trades Exhibition to be held in London in 1913. Mr. Manders probably does not appreciate it yet, but this is something that will interest rubber manufacturers almost as much as a crude rubber exhibition, and he is sure of their gate money anyway.

A GRAPHIC REPRESENTATION.

ALDEN'S "M. R.," at the London Rubber Show exhibited two small strips of compounded rubber to which were attached a weight of 287 pounds. The whole story of the test is so completely and specifically told in the figures following that commendatory adjectives are unnecessary.



A SEVERE TEST.

Components—40 per cent. Alden's M. R., 25 per cent. smoked Pará; one strip. Forty per cent. Alden's M. R., 25 per cent. smoked Ceylon; another strip.

Original size of each strip—6 ins. long x 1⅞ ins. wide x 15/16 ins. thick.

Weight suspended on each strip—287 lbs.

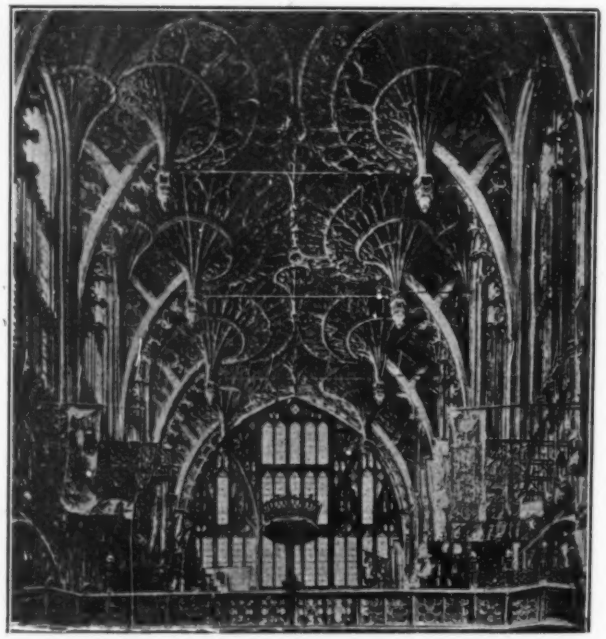
Duration of test—June 24 to July 14 (18 days), without breaking.

Size at end of the term—Pará strip, 17¼ ins. x 12/16 in. x 5/16 in.; Ceylon strip, 15 ins. x 16/16 in. x 5/16 in.

Permanent elongation after removal of the weight—Pará, 7 3/16 ins. long, gain of 20 per cent.; Ceylon, 7 3/16 ins long, gain of 20 per cent.

AN ENGLISH USE FOR GARDEN HOSE.

THE use of rubber hose in cleaning buildings as an adjunct to the vacuum system, is not altogether a novelty. For years the ornate carvings in Westminster Abbey have been



VIEW OF HENRY VII CHAPEL IN WESTMINSTER ABBEY.

cleaned by an air blast carried through lengths of rubber hose. The illustration shows Henry VII chapel in Westminster Abbey, and the platform on the left, where the cleaners are at work.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

The Rubber Club of America at Point Shirley.

MIDSUMMER OUTING.

THE annueal mid-summer outing of the Rubber Club of America, was held July 7 and was one of the most successful in the history of the club. The day's enjoyments composed golf at the Woodland Golf Club for the forenoon, a trip down the harbor and circling the islands on the steamer *Griswold*, with luncheon aboard, followed by sports and banquet at Point Shirley Club and a moonlight sail back to Boston.

The golf tournament was held at the Woodland Golf Club in Newton in the morning. The prize for the best gross score was won by W. G. Page, who turned in an 85 card. The best net score, 69, was made by W. L. Wadleigh, while A. W. Stedman, J. H. Learned and R. C. Chipman tied for second place. The first prize for golf for the best gross was a beautiful liqueur set. For the best net a travelling clock, and for the second net a bottle in a velour basket.

SOME CLUB MEMBERS IN FRONT OF POINT SHIRLEY CLUB HOUSE.

Vice President Francis H. Appleton was called out of town on important business the morning of the outing. He sent, however, as proxies, his son, his nephew, and his sincere regrets.

At 2 p. m. the party sailed down the harbor on the steamer *Griswold*. A band of 21 pieces furnished music, one of its selections being the composition of a member of the club, Dr. Joseph C. Stedman. To amuse the rubber men the entertainment committee included in the party "Charlie" Lamb, the "Lilliputian," who was rigged out as a policeman and carried a curious rubber billy and rubber revolver; Nat Farnum, known as "That Minstrel Man," and Jack Ware, "The Daffydill."

The boat steamed leisurely down the North shore as far as Marblehead, when it retraced its course, landing the party about four o'clock at the Point Shirley Yacht Club.

Joseph W. Work, whom all of the rubber shoe manufacturers well know, happens to be the president of the Point Shirley Club, and his cordial welcome to the Rubber Club, of which he has long been a member, made everyone feel at home from the start.

Here, after a short parade over the grounds behind the band, those who were to take part in the baseball game introduced something new in uniforms.

The Married Men appeared in spotless corsets, which partially covered blue overalls, and flower-bedecked straw hats. The Suffragettes wore bright red kimono coats, white petticoats and white hats. The umpire tried to preserve order in a full-length silk kimono.

The nines lined up as follows: Suffragettes—H. Fuller p, R. L. Rice c, F. C. Hood 1b and capt., A. W. Stedman 2b, George Mayo 3b, J. F. Dunbar ss, A. E. Lloyd lf, A. T. Baldwin cf, H. C. Berle rf. Married Men—W. G. Page p, R. L. Chipman 3b, W. L. Pitcher 1b and capt., R. Fuller lf, F. Gove rf, H. G. Tyler c, H. H. Henderson cf, F. Strain ss, H. A. Walker 2b.

H. C. Pearson, the umpire, was mobbed in the very first inning for ruling that left-handed batters should run to third base and not to first. Later Mr. Pearson returned to the game, minus his kimono, and lived to attend the banquet.

R. L. Chipman made a base hit, and then stole the remaining bases so rapidly that he turned it into a home run. It is rumored that he plans now to leave the crude rubber business and become a professional baseballist. By the way, three men were tied for the third golf prize. In the play-off Chipman won.

A playground ball, about twice the size of a league baseball, was used and the hits came fast and furious. Some clever plays were made by Capt. Hood of the Suffragettes and Capt. Pitcher of the Married Men, and wonderful near-catches were made by the outfielders.

After the game the members were handed a large piece of crude Pará rubber and allowed to guess its weight. First prize was won by Dr. J. C. Stedman, who guessed its weight, 13 pounds seven ounces exactly. H. H. Noyes guessed 13 pounds 8 ounces; J. F. Odell, thirteen pounds 9 ounces; F. L. Moses, thirteen pounds four ounces.

In the rubber guessing contest the first prize was a silver and glass "night cap" set; second, an elaborate stein; third, a cut glass and silver ash tray; fourth, a stein.

Frederic C. Hood, of Boston, president of the club, presided at the banquet in the evening. With him at the head table were Arthur W. Stedman, H. C. Pearson and John H. Flint. A facsimile in rubber of a chicken just emerging from its shell—with a whistle attachment—was placed at each plate for a souvenir.

The fish dinner was as good as any that "Taft" had ever prepared in his palmiest days. The menu was as follows:

MENU.

Poulet en Caoutchouc, Sur Glace
Clam Broth, Whipped Cream
Steamed Duxbury Clams
Baked Chicken Halibut, Rabbit Sauce
(Point Shirley Style)
Cucumbers Olives Radishes
Baked Live Lobster a la Taft
Saratoga Potatoes Salted Nuts
Milk Fed Broiled Chicken on Toast
Fresh Green Peas Delmonico Potatoes
Lettuce and Tomato Salad
Roquefort and Liederkranz, Toasted Crackers
Frozen Strawberry Mousse
Cake Coffee
Sauterne
Veuve Clicquot.
Roederer's Carte Blanche

There were no speeches, the entire outing being informal. The band played and the members joined in the choruses of popular airs. Later the party again boarded the *Griswold* and enjoyed a moonlight sail back to Otis wharf. Chairmen of the committees that had the outing in charge were: H. P. Fuller, entertainment; Chas. A. Coe, dinner; R. L. Chipman, sports.

PRESIDENT HOOD MAKING A HOME RUN.

Among those attending the outing were: A. S. Foster, C. J. Bailey, J. C. Rockwell, E. L. Phipps, W. L. Wadleigh, George H. Cosby, Irwin Eichengreen, C. S. Hayward, G. H. Gleason, H. G. Tyler, H. C. Benchley, F. E. Stone, F. H. Appleton, Jr., W. S. Goodwin, E. B. Kelly, M. G. Hopkins, G. E. Habich, C. B. Archer, H. H. Nance, W. H. Reilly, W. I. Swasey, H. L. Beal, C. F. Proctor, C. A. Coe, R. L. Rice, J. F. Dunbar, J. C. Stedman, H. P. Fuller, A. A. Glidden, W. G. Page, W. H. Lyons, A. C. Meyers, F. M. Schwab, R. G. Fuller, G. D. Hazen, E. A. Fargo, A. E. Culter, G. L. Hargraves, R. F. Geddes, G. J. Waxelbaum, W. L. Gough, C. L. Parkers, W. N. West, F. T. Carlton, A. A. Brigham, Milton H. French, G. E. B. Putnam, W. S. Lawrence, Arthur Reeves, Hiram B. Meyers, Gerald Gunnerson, S. A. Norton, J. H. Learned, W. H. Gleason, F. L. Tufts, A. B. Pimm, E. V. Salisbury, L. E. Appleton, A. E. Lloyd, H. C. Pearson, Thomas Strain, F. G. Gove, H. H. Henderson, F. H. Plenty, W. L. Proctor, H. D. Hamilton, J. B. Leeman, J. I. McLaughlin, J. W. Work, G. H. Mayo, E. W. Perkins, S. G. Mills, R. S. Hodges, H. O. Mason, T. F. Kimball, G. N. Nason, L. H. Duclos, G. J. Conlin, J. S. Lowman, F. L. Moses, C. McDougall, F. B. M. Corson, A. F. Solberry, H. C. Werner, C. M. Dederich, J. E. Odell, A. T. Baldwin, E. Jacoby, H. H. Noyes, Benjamin Taft, P. L. Rider and S. P. Sharples.

A. W. STEDMAN, OF THE "SUFFRAGETTES."

WALLACE G. PAGE, OF THE "MARRIED MEN."

The Editor of THE INDIA RUBBER WORLD was enthusiastically toasted at the banquet as the founder of the club. Actually the toast should have embraced George P. Whitmore, whose hard work and wise suggestions made the beginning infinitely easier.

President Frederic C. Hood, who has always disclaimed any ability to address dinner crowds, proved conclusively that he had underrated his own gifts. As a presiding officer, with his clear enunciation, strong voice, and perfet poise, he is "all to the good."

THE "LEA" WATER FLOW RECORDER.

DEVOID of complicated mechanism, and employing for measuring the flow, a simple V notch plate, by means of which great and unvarying accuracy is ensured at all flows, the "Lea" Water Flow Recorder, is ideal for the measurement of boiler feed water, pump discharges, acids and other liquids. It is useful wherever a continuous record of the running of boiler plant, production of steam, evaporation per pound of coal, and flow of water are kept, and is conducive to economy and efficiency in operation.

Working under a head of about 18 inches, it can be installed in existing plants; it has no mechanism in contact with the water and the same instrument can be varied as to measuring capacity, by simply changing the notch plate for one of wider or narrower angle aperture. The first cost of this device is the last. Engine and boiler plants aggregating upwards of 500,000 horse power, have Lea recorders now in use.

The accompanying illustration shows the instrument complete, with its V notch tank, as applicable to any of the purposes above stated. It is guaranteed to produce records which shall be

A SIMPLE FLOW-RECORDING INSTRUMENT.

within one and one-half per cent. of absolute accuracy by weight and in which the average error, due to variations in temperature over a range of 50 degs. Fahr. (*i. e.* 25 degs. Fahr. on either side of the normal) shall not exceed 0.5 per cent. Various methods of applying the records are shown in the catalogue published by the manufacturers. No erection is required except connecting inlet and outlet, while its reasonable first cost has the additional advantage of being the last. [Yarnall-Waring Company, 1109 Locust street, Philadelphia, Pennsylvania.]

THE OBITUARY RECORD.

WELLING G. SICKEL.

AFTER suffering from heart trouble for nearly two years, Welling G. Sickel passed away at his summer home at Spring Lake, New Jersey, July 15.

Born at Trenton on November 15, 1858, Mr. Sickel received his education at the Trenton Academy. After leaving the academy he took a course at the business college of Rider & Allen, and from there entered the employ of the Mercer Pottery Co. At the end of two years, spent in gaining practical knowledge of the potter's art, Mr. Sickel became western repre-

WELLING G. SICKEL.

sentative for the pottery company. He remained about six years with this concern, and in 1885 organized the United Rubber Co. at Trenton, which subsequently built up a very large business in railway supplies.

In 1897 Mr. Sickel was elected mayor of the City of Trenton, receiving the largest majority ever given a candidate for that office. During his administration many important improvements were effected, and the foundations laid for many lasting monuments to his untiring activity for the general welfare of the people. The Trenton Art School (now one of the foremost of its kind in the country) was launched through the efforts of Mr. Sickel. Trenton's Free Public Library was urged by him in every message to the city council, and he appointed committees that afterwards settled down to foundation work.

Mr. Sickel was for some years Vice President of the United and Globe Rubber Co. In November, 1909, along with United States Senator Elkins, he disposed of his holdings and withdrew from the company. Later he became associated with the Hewitt Rubber Co., with a factory at Buffalo, New York.

The funeral was held in Trenton on the 18th, the interment being at Riverview Cemetery. Prominent men from the rubber trade in Trenton and from a distance were in attendance.

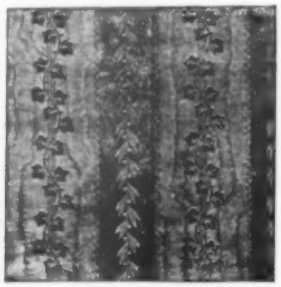
A PRACTICAL WATERPROOF VEIL.

A GREAT discomfort to women for a long while has been the fact that rain either spoiled outright or impaired the looks of veiling of any sort. This difficulty has at last been overcome and a waterproof veil called the "Grenadine" is the result which can be had at one of New York's leading stores. The waterproofing of transparent fabrics affords a new field for that important branch of industry, bringing it more closely in touch with the development of fashions.

New Rubber Goods in the Market.

ARTISTIC RUBBER CARPETINGS.

DUSTLESS, noiseless, durable, easily laid and cleaned, rubber matting, in its familiar corrugated form, has found extensive employment as a floor covering in business apartments and other places of public resort, for halls and corridors, the floors and steps of automobiles, etc.

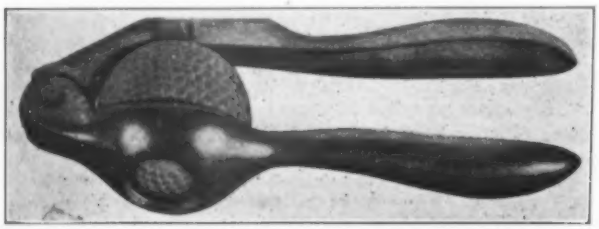


Exception has been taken to the old style corrugated matting, on account of the severe plainness of its appearance, but this objection is removed in new, patented rubber carpetings, approved designs of which we show. A decided improvement, as

far as appearance is concerned, it is claimed that these carpetings wear well and are easy to clean. Samples with prices, etc., may be obtained from the patentees and manufacturers. [Voorhees Rubber Manufacturing Co., Jersey City, New Jersey.]

A NEW GOLF BALL MARKER.

THERE is no argument against the marking of golf balls. In fact the ordinary golfer is very much in favor of such means of identification. That is why there are so many purchasers for such an implement as the "Goodspeed," for example. It is a



THE GOODSPEED GOLF BALL MARKER.

very simple tool, nickel plated, with hardened steel die initials and an inking equipment. Any one that can play golf can use it. [Arthur Goodspeed, 188 Virginia avenue, Jersey City, New Jersey.]

A SUPERIOR SYRINGE OUTFIT.

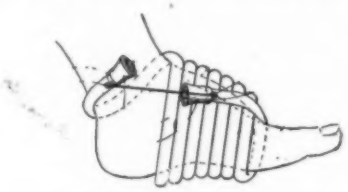
The syringe outfit, shown herewith, consists of a pure gum, hand-made bag, re-inforced with a frictioned strip running from top to bottom, in which the hanging eyelet is introduced. The advantage claimed for the outfit, which is intended especially for

GOODRICH SURGEON'S SYRINGE OUTFIT.

physicians' and travelers' use, are lightness, superior quality and portableness, as it folds into a small, compact package, all of which are qualifications that the average user will also appreciate. [The B. F. Goodrich Company, Akron, Ohio.]

A VEST POCKET FOOT BANDAGE.

THIS is really a length of tubing, capped at each end and fitted with couplings for attaching the ends when in position. In



A CONVENIENT FOOT BANDAGE.

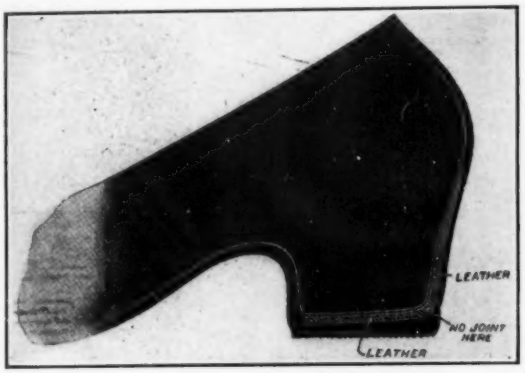
use it may be filled with hot or cold water and can be applied to almost any part of the anatomy. [U. S. Patent No. 970,907.]

DOUBLE FABRIC TIRE PROTECTION.

To lengthen the life of the fabric means to prolong materially the serviceable life of a tire and the double fabric system of tire protection has been devised to accomplish this. The Murray Patent "Interlock" inner tire, a recent development of the double fabric protection idea is shown. It is in reality a tire within a tire, the inner tire being made as heavy as the outer, of 4 to 6-ply Egyptian cotton fabric, laminated, with a self-sealing flap reinforcing the rim and sides. It is claimed that it is made hard enough to turn nails, strong enough to hold blowouts and support old, weak or overloaded tires until they are past all wear, when it can be removed for use on another tire. [Double Fabric Tire Co., Auburn, Indiana.]

LEATHER INNER HEEL RUBBER.

TO PREVENT heel plates and small heel shoes, short-fits and run-down heels from breaking out or cutting through rubbers at the back, The Kaufman Rubber Co., Ltd., Berlin, Ont., Can., have brought out the improved form of rubber for women we illustrate. The inner heel shown is made of leather and jointless



RUBBER WITH LEATHER INNER HEEL.

and of the many placed on sale to give the improvement a thorough practical test, all have proved successful. The new rubber is an addition to the manufacturers' line of "Life Buoy" rubbers for women.

PROGRESS IN RUBBER SHOE MAKING.

ADNA D. WARNER, superintendent of the Mishawaka Woolen Mfg. Co., Mishauaka, Indiana, is the inventor of a process in the manufacture of rubber footwear, which, simple as it looks, is a

CROSS SECTION OF WARNER'S SHOE.

step in the right direction. It consists in brief in forming an insole and a narrow filling sole, under great pressure, into one sole. The pressure leaves the article recessed all the way round, so that when placed upon the last or tree the outer sole and upper are instantly and easily affixed. [United States Patent 989,089.]

THE BROOM VACUUM CLEANER.

A VACUUM cleaner, the nozzle of which slips over a broom, is something that the housewife is sure to appreciate. It will give her the impression that she is still wielding the tools of her trade, and at the same time doing it in the most approved modern fashion. Such is the "Pneurac," which will doubtless greatly increase the household uses of hose and insulated wire. [John Wanamaker, New York.]

POPULAR GERMAN NIPPLE.

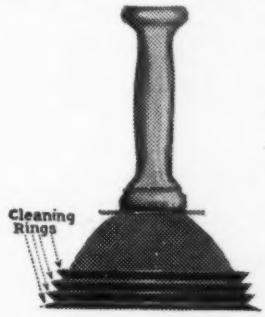
A FORM of nipple that has of late appeared upon the German market is herewith shown. The illustration tells all about it as

GERMAN TYPE OF NIPPLE.

the novelty is wholly in its shape. [Gummiwarenfabrik M. Steinberg, Koln-Lindenthal, Germany.]

THE CORRUGATED CLEANER.

Force cups are almost as old as the rubber trade itself, but the "Little Plumber Force Cup and Corrugated Cleaner" is new and what is more to the point, good. The corrugations which encircle the bell shaped mouth, are found to be very effective in keeping the cup from collapsing when in use. The corrugations also form a sort of brush that is most useful in cleaning enamelled fixtures, etc. In addition to the type shown in the illustration, there are two plungers, large and small, when the corrugations core the whole of the outer surface. This is used now as a plumbers tool and has been found to be of great merit. [The Quaker City Rubber Co., Philadelphia, Pennsylvania.]



LITTLE PLUMBER FORCE CUP.

SYNTHETIC GUTTA PERCHA.

NOT exactly that either. The product is called "Synthenite," and it is produced by a company who are large manufacturers of Gutta Percha fuse. The new product does not oxidize as does gutta, and is therefore not as likely to crack in dry climates or at low temperatures. Manufactured by the Insoloid Fuse Co., Ltd., Denver, Colorado.

WATERPROOF FOLDABLES.

As a rule pails, tubs and baskets are nuisances, necessary ones to be sure, but they are bulky, intractable, and while useful in camp are a trouble en route. The whole line has been made foldable and, therefore, infinitely more usable. This line em-

DUPLEX FOLDABLES, OPEN AND CLOSED.

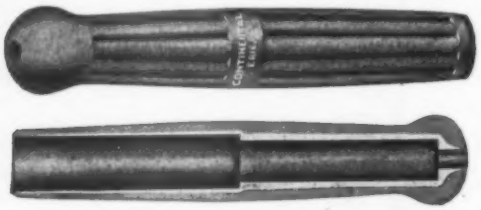
braces water pails, auto pails, lunch baskets, clothes baskets, wash basins, foot tubs, bath tubs, fishing creels, minnow buckets, tube trunks, tool cases, etc. They are all made of strong waterproof canvas, the metal parts of spring steel, rust-proofed. They are "knock down" and fold into very small compass. [The Planet Company, Westfield, Massachusetts.]

A NEW MOTORCYCLE GRIP.

THE strenuous hold on the handle bar grips the motorcycle rider is often compelled to maintain is one of the chief sources of weariness and riders will gratefully appreciate the motorcycle grip illustrated herewith. Made with an inner lining throughout of fabric, it is especially tough and strong, and cannot break off at the end of the bar. This has been a frequent source of trouble with the present form of construction, the grips breaking and separating. Even the relief part of the grip, which is not supported by the bar and is subject to severe strain, has been strengthened in the grip illustrated by building up with several

thicknesses of fabric, making it impossible for the end of the bar to cut through the rubber, which frequently happened heretofore.

Made of rubber that is soft and resilient, it is much more comfortable than the hard rubber grip, while its grooved form, which ensures a good hold, also permits a circulation of air by which

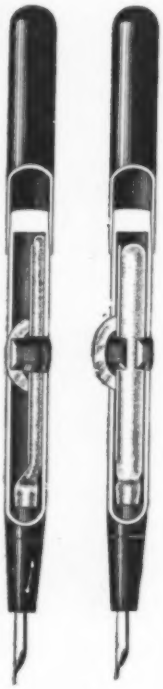


IMPROVED MOTORCYCLE GRIP.

the hands are kept cool and comfortable. [Continental Rubber Works Erie, Pennsylvania.]

RUBBER IN A SELF-FILLING FOUNTAIN PEN.

ONE of the obstacles to the even more wide-spread adoption of the already extensively used fountain pen, has been the "muss" and trouble of the ordinary filling process. In Conklin's self-filling fountain pen, this trouble is dispensed with. The ink is contained in a reservoir made of the best quality rubber, guaranteed not to become hard or crack and to remain unaffected by acids. By compressing this reservoir, effected by an ingenious device known as the "Crescent filler," immersing the point in the ink and releasing the filler, the ink reservoir in expanding fills and the pen is ready for use. Cleaning is effected in the same simple manner, the point being plunged into clean water. There is no trouble about the proceeding, which is perfectly cleanly and quickly effected, and the life of the reservoir is about five years, the makers guaranteeing it for this period. In the accompanying illustrations, sectional views show how the reservoir is compressed by pressing the filler, also the simple construction of the device. The pen is made in various styles, the filler interfering neither with the appearance nor convenient use of the pen. [The Conklin Pen Mfg. Co., Toledo, Ohio.]



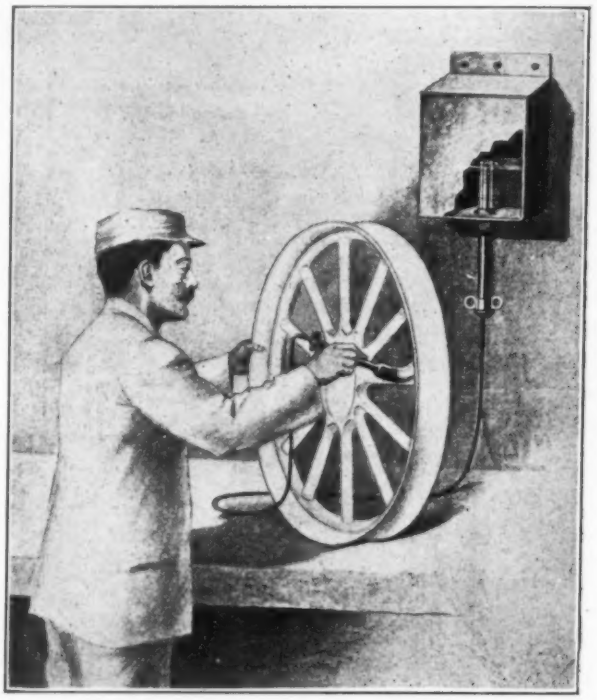
RUBBER TO PROMOTE REPOSE.

BECAUSE the worthy citizens of Brookline, Mass., desire to prolong their matutinal slumbers undisturbed, it is proposed, according to a Massachusetts paper, that the milkmen in that city be compelled to equip the wheels of their wagons with rubber tires and their shoes with rubber heels. The early morning approach to the homes of the somnolent Brooklineites, of the dispensers of the lacteal fluid, would thus be rendered less noisy and the customers relieved of the interruption of their Morphean indulgence.

Long staple Egyptian cotton was imported into the United States in seven recent months to the amount approximately of 60,000,000 pounds, valued at $16,000,000. Efforts are to be made to cultivate this variety in the Colorado River region.

PAINTING THROUGH TUBING.

LONG ago whitewashing was done by an atomizer and through rubber hose. A movement toward more artistic work is the new Standard Automatic Painting System that besides a hollow-handled aluminum brush and a paint tank uses lengths of tubing for conducting the paint. [The Standard Automatic Mfg. Co., New York.]



STANDARD AUTOMATIC PAINTING SYSTEM.

RUBBER PROTECTED WEEDLESS FISH HOOK.

Some of the most highly prized of America's game fish give the angler much trouble on account of their disposition to seek weedy spots when feeding or after being hooked. The annoyance of finding the hook clogged with weeds while trolling, just when a "strike" is to be expected, will likewise be acknowledged by every fisherman. The hook illustrated herewith, while designed primarily for casting with a "porker," can be used

with equally good results with any other bait and is guaranteed to work weedless in any water. A wire spring is soldered on the hook-shank, over this is placed a rubber protector which guards the hook point on all sides from weeds. When a fish strikes, he forces this protection down to the hook shank and as soon as he is hooked, the rubber springs back into place, and the captive cannot get loose. The illustration, which shows the "porker" ready for business, will explain itself; a weight, seen under the rubber protector, keeping the hook upright in the water. [The Fisherman Co., Detroit, Mich.]

OLIVAUTO CLOTH.

ONE of the newest materials for the out-of-door man is called "Olivauto Cloth." It is of pure Australian wool, woven so as to be dustproof and of a color that will not show wear of any sort. It is moreover absolutely coldproof and sheds water.

A PUNCTURE-PROOF TIRE.

SOME years ago Cassimer Zeglen invented a bullet-proof fabric that would successfully turn a .38 calibre bullet, the projectile being flattened, without injury to the fabric. It was a close weave of pure silk, but the adoption by the various countries of high-powered arms, with their extraordinary penetrating power, led the inventor to abandon the bullet-proof fabric field and turn his attention to the utilization of his invention in the manufacture of puncture-proof tires, burst-proof hose, and other specialties.

In its employment for tires, the *modus operandi* differs but little from the methods at present in use. The Reglen fabric, which forms the basis of the tires, is passed between calender rolls, in connection with properly prepared rubber, which, by this means, is forced into all interstices of the fabric. Upon the surface thus prepared, the outer rubber covering, or tread, is vulcanized, the result being a substantial, compact casing, lacking nothing in resiliency and guaranteed to be non-puncturable.

The tests to which tires thus constructed have been subjected, as described by the manufacturers, would appear to substantiate the latter claim. Several hundred nails of different kinds—cut nails, wire nails, spikes, thick and thin, and all filed to sharp points—are driven through a heavy plank, so as to project from one-half to two or more inches in all directions. Over these projecting points a fully loaded automobile equipped with the puncture-proof tires, is driven up and down, at varying speeds, the nails perforating the rubber but failing to penetrate the fabric. Broken bottles, angle irons, horse-shoes with nails in them, and other things that automobilists encounter on the roads to their great discomfort, are also run upon, without puncturing the tire; experiments such as are above described having been made many times and invariably with the same results.

It is proposed to weave the material in circular form, for the manufacture of fire hose, which it is claimed would never burst, and its use for the manufacture of air, steam and brake-hose, etc., is likewise suggested. The American Rubber and Fabric Co., Philadelphia, Pennsylvania, are the manufacturers of goods under the Zeglen bullet-proof fabric patents and are making arrangements to exploit the invention in various practical forms.

MOTOR TRUCKS AND GOOD TIRES.

THE United States Army officials have for some time had under consideration the employment in the military transportation service, of motor trucks, especially for long hauls, that have to be quickly made. As a result of their investigations, the successful employment of motor trucks, in connection with recent military operations, may be quoted and the outcome has thus far proved eminently satisfactory.

The manufacturers of the Saurer Motor Trucks have recently undertaken a unique test that may prove fruitful of information, not only for the army transport officials, but for all who are interested in carrying heavy loads over long distances.

With a five-ton vehicle they recently started a trip from Denver to San Francisco, the truck carrying a load of three to four tons. The return trip will be made by way of Salt Lake City, Cheyenne, Omaha, Chicago, New York and back to Chicago.

Bearing in mind the vast importance as a factor in the success of such a journey of the quality of the tires, it is interesting to note that the truck is equipped with wireless tires, made by the B. F. Goodrich Co., Akron, O., the single pattern being used on the front and twin tires on the rear wheels.

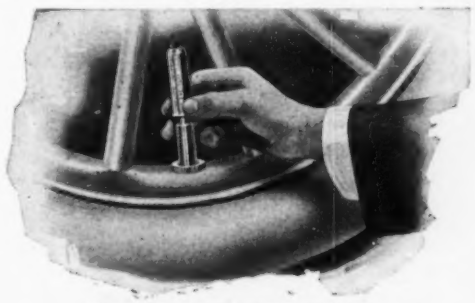
A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

THE UNIVERSAL TIRE PRESSURE GAUGE.

AUTOMOBILE tire manufacturers unite in emphasizing the importance of proper inflation of tires, as the surest means of preventing tire troubles and prolonging tire life to the maximum. In most instances they issue a schedule of pressures to be maintained in tires of different sizes under varying loads, if the best results are to be ensured.

UNIVERSAL FIRE PRESSURE GAUGE.

Empirical methods of determining air pressure in tires, have long since given way to an exact system, and here a tire pressure gauge is needed. Such a device, the Schrader Universal Tire Pressure Gauge, we illustrate. Applied to the end of the valve, after the removal of the dust cap, it records the pressure of air in the tire and remains at the reading until returned to zero. This, and the fact that it can be used with the valve in any position, will appeal to the motorist, and it is sold under the guarantee of the makers, who are old-time experts in this line, as to its material and workmanship. [A. Schrader's Sons, Inc., New York, N. Y.]



TIRE PRESSURE GAUGE IN USE.

RECORD EXPORT OF AUTOMOBILES.

A SPECIAL report from the Department of Commerce and Labor records the fact that the total increase of exports during the fiscal year ending June 30, 1911, as compared with 1910, was $304,000,000, being a larger gain than in any previous single year. The last five years of our exports would thus show (in millions of dollars):

Year.	
1907	$1,881,000,000
1908	1,861,000,000
1909	1,663,000,000
1910	1,745,000,000
1911	2,049,000,000

For the first time, the two-billion mark has thus been passed. In this last increase, farmers and manufacturers have shared about equally, this fact being of a nature to encourage American national industries. Automobiles and parts are said to be three millions of dollars ahead of last year, as 1910 showed exports of eleven million dollars. The latest return represents a gain of more than 25 per cent., decidedly an encouraging result.

ABUSES IN THE RUBBER TRADE — A PLEA FOR CONCERTED ACTION.*

THE impropriety of certain trade customs is bound to be largely a matter of individual opinion, and such opinion is formed in great measure by commercial environment. The fact is generally recognized that the commercial characteristics of the various sections of our country have all the local color of habit and association. In like manner, the opinions and consequent methods of the individual manufacturer or dealer must differ by reason of association, habit and policy. Certain customs, which may appear to some as unfair and unbusiness-like, will appeal to others as being necessary and, therefore, legitimate. Such differences of opinion exist only on matters of minor importance, and on all vital questions of general policy the rubber trade at large are in perfect accord.

This article deals only with trade abuses that are serious in their nature and general in their application. Nor is there reference to the many difficulties with which the trade, as a whole, is obliged to contend, except insofar as they may relate to the manufacturer in his dealings with the various distributing factors.

Further, there is no trade custom which works hardship to the manufacturer but what will affect the general interests of the dealer.

First, as to existing price lists, many of these are utterly inconsistent. It is impossible for a manufacturer to so arrange his discounts upon the basis of many of them as to remain fair with himself, and at the same time fair with purchasers. It is impossible to say how long certain of these lists have been in force, and, perhaps, at the time of their adoption they were proper and consistent. Today many of them have no legitimate excuse for existence in their present form. Such revision of these lists should be instituted as will bring them into conformity with modern conditions.

There is little stability in the matter of terms upon which goods are sold, and they are apt to vary essentially to suit the demands of the individual buyer. I find in some instances, and more especially in certain sections of the country, stocks of goods are delivered to a prospective customer's warerooms, with the understanding that he assumes no definite responsibility except for their custody, and that they are not to be paid for except as they may be sold. This is what is called "consigning" goods. While oftentimes many decline to put their goods out upon these terms, yet, on the other hand, datings are given and payments arranged which indicate a willingness on the part of the manufacturer to assume the functions of a banker. The interests of the rubber industry suffer from this attempt to combine the manufacturing and banking features of commerce. In the conduct of this combination policy there is, however, this essential difference between the methods of the manufacturer and the methods of the banker, in that, in direct contradiction to approved banking methods, the manufacturer is apt to extend the largest and longest credit where the risk is greatest. Concerted effort upon the part of the manufacturers is the best method to establish propriety and uniformity in the matter of terms.

It is to be deplored that the guarantees placed upon the product oftentimes put a premium upon misrepresentation.

The matter of a time guarantee is essentially an evil. There is no legitimate reason for it. Replacement should be made only when goods prove defective in material, construction or workmanship, and not because they have given out through improper use, carelessness or abuse, within a given period of time. There is no propriety in a manufacturer replacing at the end of a season a piece of suction hose because some one has seen fit to drive a wagon over it, a pair of boots that have failed through abuse, a piece of thresher belt because some one has attempted to keep it in line by running it against a stick driven in the ground, a tire that has been maltreated in every possible way. There certainly appears to be great opportunity for proper regulation in this matter of the terms of guarantees.

It is also a fact that in many cases a manufacturer is not only burdened with the detail and expense, but also suffers the loss of his identity, through the insistence of the dealer in having goods furnished under private brands. This is not only a nuisance and an expense to the manufacturer, but it is bad for the dealer, because of added expense and delay in shipment, and because it is also an incentive to the lowering of standards. Some concerted effort should be made to control this feature of the industry.

There seems to be a tendency among many people, who have just sufficient knowledge of rubber goods to make it a dangerous thing, to supply their own specifications, and then expect the manufacturer to guarantee the product made in accordance therewith. This is something which should be discouraged by the industry as a whole.

There is a tendency upon the part of some to insist upon making contracts which are binding upon the manufacturer, but which impose little or no obligation upon the buyer. The trade suffers from what are known as "blanket" orders, in which, upon analysis, are found none of the essentials of legitimate commercial transactions. They are simply a call which the manufacturer gives the dealer upon his verbal assurance of the purchase of an indefinite quality of goods which the dealer may or may not elect to take.

There is no reason why the matters of quality, material, delivery, terms and prices should not be set forth in a contract. It is essential for a manufacturer to know the condition of his orders, and to protect himself by purchases applying on his contracts, particularly at this time, owing to the most unfortunate speculative character of the bulk of our purchases. This matter of indefinite and uncertain sales is among the greatest of the trade abuses, with which rubber manufacturers are not obliged, but choose to contend. The best way for the industry to protect itself from this evil is by unanimous action.

Among the greatest temptations which a manufacturer has to withstand is that of making goods to meet a price which has no other reason for its establishment than may exist in the desire of the buyer. The manufacturer is told that he may meet this price or not as he chooses; if he does not, there are others who are anxious to, and that his sales representative is the particular one selected for the bestowal of this favor, because he is such a good fellow. Over ninety per cent. of the just complaints on rubber goods and the consequent damage to the reputation of the industry, as a whole, are upon articles that lack the essential qualities of service and durability, because the manufacturer could not afford to put the right quality of material and workmanship in them at the price which the buyer elected to establish. There is nothing that will prove more disastrous to the interests of this industry than the manufacture of inferior goods. The temptation is always there, and unless some organized and concerted effort is made to control this feature, the whole industry is bound to suffer from it in time to come. It will be well to remember that it will not only suffer the direct loss of money wasted in replacements, but what is of greater importance, will lose a large volume of business which will go to other lines to be used in substitution for rubber goods.

There are many other improprieties, but the removal of the above would be a long step in advance. It is perfectly obvious that inequalities in price lists are a handicap to the dealer and the consumer, as well as to the manufacturer; that improper terms not only work injury to the manufacturer, but much harm to those consumers and dealers who purchase their goods upon a

*This article was prepared by a successful rubber manufacturer, whose study of the economic conditions of his trade has been most exhaustive. At the present time, now plans for the winter campaign are being formulated, it is most timely.

legitimate basis of payment. It is apparent that unjustifiable replacements work serious injury to those dealers and consumers who are fair in their methods and reasonable in their demands. It is also plain that the buyer who is willing to make straightforward and proper contracts is relatively at a great disadvantage in comparison with his competitor who succeeds in entering into agreements which entail no obligation upon his part. The time has come when some organized and concerted effort should be made to protect and advance the welfare of this industry. This is not to advocate any measure in the interest of a private business or for the purpose of advancing the material welfare of any factor, be it manufacturing or distributing, which will work hardship or injury upon another factor of the industry. The interests of private business are absolutely dependent upon the condition of the industry. The manufacturer's, distributor's and consumer's interests are absolutely identical. Possibilities for service, utility, progress and profit have no proper and economic existence because trade custom invites one factor or individual to take advantage of the other.

There is no commercial transaction which is proper unless it embraces mutual gain and mutual advantage. The fact that the consumer has bought an inferior piece of goods, that a jobber has caused positive embarrassment and possible loss to the manufacturer by reason of the uncertainty of his contract; that a manufacturer has, by injudicious credit, established an irresponsible distributing factor, does not mean gain, but, on the contrary, it means a net loss to the industry, as a whole. This is not to suggest or urge the introduction of any changes in trade customs which are likely to make one branch of the industry prosper at the expense of another, or that will impede progress, either general or individual, or that will discourage enterprise; but, on the contrary, it is to advocate the introduction of such general methods, policies and customs as will insure not only to each individual enterprise, but to each class of trade the opportunity for more rapid and better development and growth. It is to advocate increased opportunities for the use of capital in the particular function upon which economic existence is based, and more equitable treatment which should be based upon justice and fairness and not upon exaggerated demands.

RUBBER GATHERING IN PENNSYLVANIA AND IN CANADA.

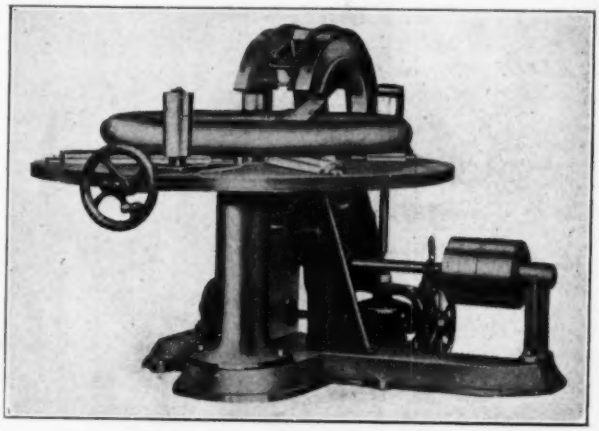
AN ESTEEMED daily contemporary, hot after news, has made two discoveries of vital importance—one that the inhabitants of Hyde Park, Pa., have from time immemorial, been accustomed to leave their rubbers on the porch, and the other, that on a recent night some unthinkable miscreant swept through the town and cleaned every porch of its consignment of sandals and "storms," leaving the citizen the next day to wallow about with wet feet and heavy hearts.

One's first thought on hearing of this new addition to the annals of crime, is that it served those people right for placing so little value on the humble, but indispensable galosh. One's second thought is, "Did it really net the looter or looters (for the thing was probably syndicated) enough to pay for all their trouble and hard work?" Hyde Park is a small town and it is doubtful if a clean sweep of piazza rubbers footed up more than 200 pairs. Allowing a pound to a pair, and with old shoe scrap at nine cents per pound, the gross returns would not exceed $18—from which must be deducted cost of gathering, packing, shipping, commission on sales, and the necessary expense of maintaining harmonious relations with the local constabulary. It really could not have netted much for a hard night's work. If the four to five million New Yorkers should all conceive the idea of leaving their rubbers out on the front steps, that would be quite another matter.

A BOOK for everybody interested in tires—"Rubber Tires ond All About Them"—this office.

FOR WRAPPING AUTO TIRES.

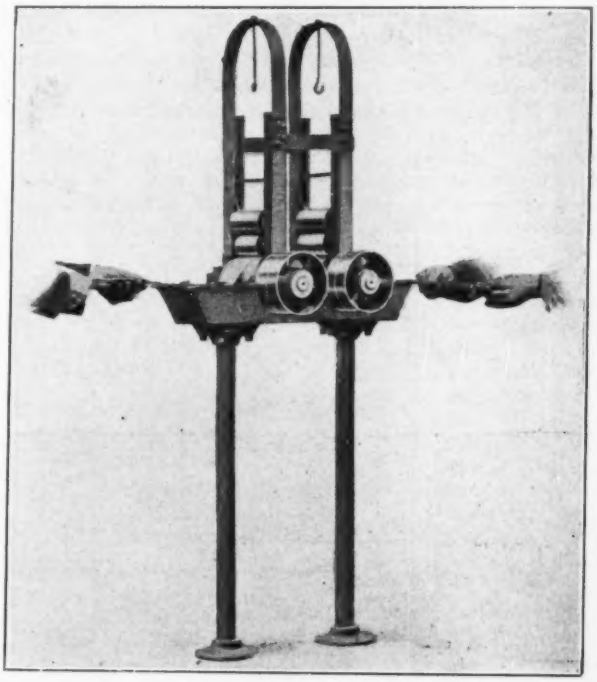
CLOTH-WRAPPED tires are the reason for the power wrapping machine here shown. Its points are as follows: It is able to wrap any size of tire up to 42 feet. Its spools hold



CLOTH WRAPPING MACHINE FOR AUTOMOBILE TIRES.

wrapper enough to finish a tire without re-threading. It gives even tension and in threading only one motion is necessary to put a full bobbin in place, and pass the wrapper about the tension bars.

In use the tire lies flat on the table, and the layer of wrapper may be reversed by simply reversing the shuttle drive. The machine is speedy; there is no straining or breaking and it weighs

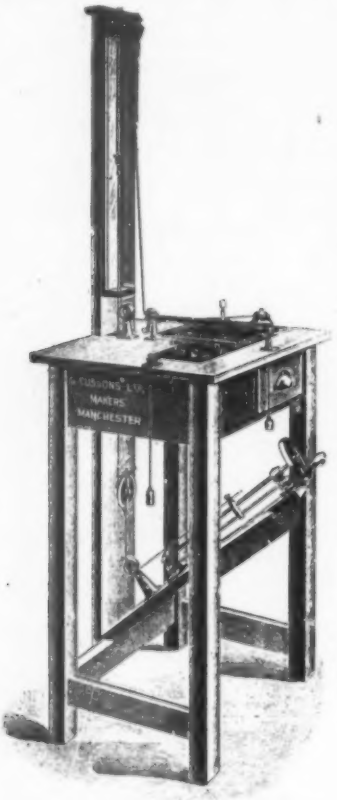


RAG WRAPPER.

about 1,600 pounds. An adjunct to it, a rag wrapper for filling the bobbins, weighs 150 pounds. [The Williams Foundry and Machine Company, Akron, Ohio.]

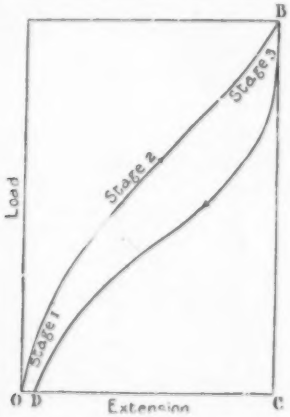
A RUBBER TESTING HYSTERESIS MACHINE.

THIS important little machine is the invention of Prof. Alfred Schwartz, a noted English professor of physics and electrical engineering. As seen in the illustration the machine shows the



RUBBER TESTING HYSTERESIS MACHINE.

effect of the extension of a piece of rubber by means of a load which is increased at a regular rate until either load of expansion is attained. When this has been done the load is diminished at a given rate, the rubber allowed to retract and the relation



between load and elongation is found to have been recorded automatically by a pen which draws two lines, one during extension and the other during retraction. It is exceedingly simple and any one familiar with testing machines can see at a glance its method of working.

What is known as the hysteresis loop is shown in the accompanying diagram. This, by the way, is drawn upon a sheet of paper attached to a moving table. The line O B is made during extension and is the result of the stretch of the rubber and of a calibrated spring. D B is the retraction curve. The outlines of the curve indicate the physical properties of the rubber sample and thus determine its qualities and insulating values. [Manufactured by G. Cussons, Limited, Broughton, Manchester, England.]

RUBBER LINES FOR FISHING.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

SIR.—As you are doubtless aware Cape Cod fishermen use a long coiled spring of the best steel at one end of which the hook in cod fishing is attached. The cod is likely to be a trifle unruly when hooked, stretching the spring to its full tension. Tiring eventually and weakened by its struggles, the spring recovers, throwing the fish with violence from the water, frequently endangering the life of the fisherman, who naturally becomes an expert dodger. A land lubber at this sport is liable to black eyes and missing teeth, for when the "sacred cod" lands, he lands hard.

I have given the dangerous nature of this sport close attention in the last few weeks, and have evolved a remedy that will revolutionize the methods long employed in the capture of fish, and add a novelty to the rubber factory product; in short, a rubber fish line.

I took twenty-five feet red tubing, containing 40 per cent. "unrecovered fine Para" (see specifications for wire insulation for particulars) and attached thereto a hook in the usual manner. I also had the foresight to take the July issue of THE INDIA RUBBER WORLD, and thus equipped, proceeded to the lair of the cod. The day was hot and the bay calm, and the fishing being the reverse of exciting, I fell to reading. I must have fallen into a pool of deep thought, for I was aroused by the violent rocking of the boat. Whipping back and forth through the water went the rubber line, now here, now there, and gazing into the depths of the translucent ocean I saw an immense fish in a frenzy of wrath. He would dive far below and the inexorable, elastic line would lengthen out and out, from 25 feet to 75 feet (you will observe if you consult specifications that it must stretch four times its length without breaking), then tired with its labors, relax and be steadily drawn back, not violently, as with the spring contrivance referred to, but gently, inexorably, as is the nature of a high-grade Para product. Then resting, the fish made another wild rush for freedom until, finally, quivering in every fiber of its magnificent length, it floated slowly to the side of the boat and gasped, "What is this thing I've been pulling on for the last half hour?" "A rubber line," I replied, gravely. "Take me out—I thought it was an angle worm!"

JAMES W. CAREY.

Spider Lodge, Monument Point, Mass., July 4, 1911.

ELECTRICIANS' GLOVES AND BOOTS.

PROMINENT amongst the varied products of Harburg and Vienna India Rubber Co. is a line of special interest to electricians and electrical workers. The rubber gloves and boots made by this company, and guaranteed to withstand 20,000 volts, so efficiently protect the wearers that no shock is felt when actually holding live wires carrying high voltages.

A WISE PRECAUTION.

WOULD-BE CUSTOMER—I want a good supply of shock-absorbers—largest you've got.

Rubber Dealer—What machine do you want them for?

Customer—No machine; want them for myself. I'm going to Atlantic City.

ACCURATE TESTS OF TIRE EFFICIENCY.

IN order to accurately define any strain or burden, tests of uniform nature form an indispensable condition. These, to be of utility, should as far as possible reproduce the influences to which the objects tested are subject in actual use. The value of such tests is enhanced when the comparative effects of an identical cause is shown with reference to various forms of material.

The importance of this principle as to the resistance of tires for trucks, has been demonstrated by The Michelin Tire Company. Solid tires, they claim, do not seem to have given the results expected from them with commercial vehicles, there having been a double sacrifice of speed and lightness. An increase of 5 per cent. in weight, instead of reducing the wear, increases it, it is stated, by about 14 per cent. It is added, that while solid tires have certain advantages in the reduction of noise, they are hardly more satisfactory than ordinary iron tires in reducing vibration. If nothing can be gained in speed, horse traction, it is urged, becomes far more economical.

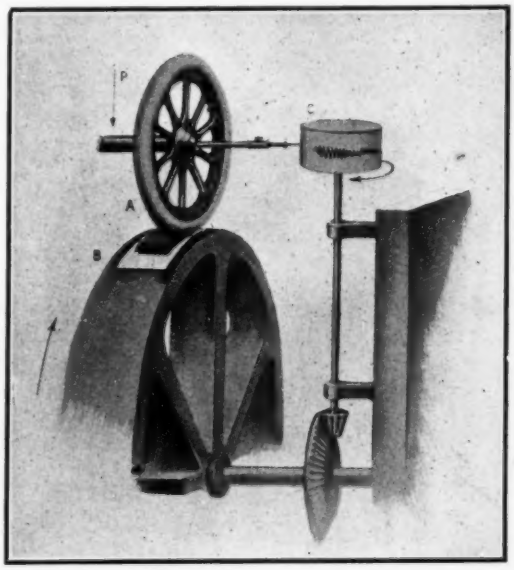


FIG. 1. DEVICE FOR REGISTERING VIBRATIONS OF TIRES.

In the belief founded upon the above facts, that car manufacturers can get no satisfaction from solid tires, the Michelin company has refused to undertake their manufacture. This refusal was prompted by the results of numerous experiments, conducted for the special purpose of proving scientifically that solid rubber is incapable of allaying vibration. Out of fifty experiments made, typical results are quoted in respect to eight, two of these results being reproduced in Figs. 2 and 3.

A wheel (A fig. 1) loaded with a weight of half a ton, fitted first with a solid rubber tire 2.46 inches thick and then with a pneumatic tire, was set revolving at a speed of 16 miles an hour on a fly-wheel (B). The very broad rim of this fly-wheel was arranged to accommodate various objects which would give it an uneven surface. The displacements of the hub of the wheel (A) were registered by a pen attachment, which traced the exact height of each rise and fall on a cylinder (C) revolving at uniform speed. In this way the fly-wheel exactly represented the uneven surface of a road, while the wheel (A) played the part of a car wheel. A first examination of the curves shows that in each instance the pen has traced the constant vibrations, which in the case of the solid tire measure from 0.23 to 0.27 inch, even when no object has been placed on the fly-wheel, while they register only 0.02 inch with the air-filled tire. These tracings came entirely from the fly-wheel and give some idea of the work of solid as compared with air-filled tires.

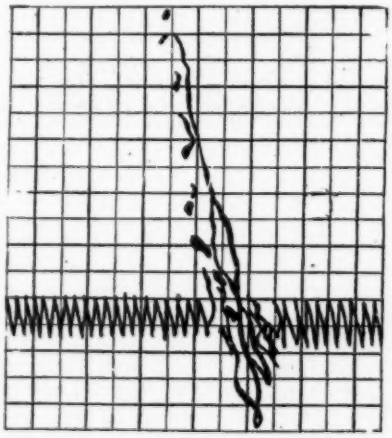


FIG. 2. RECORD OF VIBRATIONS OF SOLID TIRES.

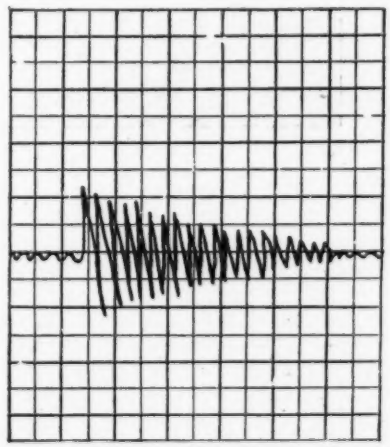


FIG. 3. RECORD OF VIBRATIONS OF PNEUMATIC TIRES.

RESULT WITH SOLID TIRE. (FIG. 2.)

Over a long half oval obstacle, 1.17 inches high, the solid tire raises the wheel 2.30 inches.

RESULT WITH PNEUMATIC TIRE. (FIG. 3.)

Over a long half oval obstacle, 1.17 inches high, the pneumatic tire raises the wheel 0.44 inch.

These diagrams, it is added, indicate that the pneumatic tire absorbs the obstacle, the height to which the hub is raised being less than the height of the obstacle itself, while the solid rubber tire does not prevent the wheel from rising higher than the obstacle.

TWIN TIRES.

The natural advantages thus connected with pneumatic tires are accentuated by their use in the form of "Twin Tires," when two or sometimes three pneumatic tires are placed side by side on the same wheel; the pneumatic suspension thus afforded ensuring speed with comfort and increasing the weight-carrying power.

* * *

In line with the above views, are the opinions of ex-Lieut. Joseph A. Webber, of the Boston Fire Department, in his paper read at the annual meeting of the New York State Fire Chiefs. He considered that the choice between solid and peumatic tires for use on fire engines should be decided by the weight of the car, which should be kept below 3,000 lbs. On such cars the dual system of pneumatic tires had proved very successful. Above the weight named either the dual pneumatic system should be used on the rear or else cushion or solid tires. This recommendation of single and double pneumatic tires specially applied to "first aid" cars, such tires being indispensable, at a speed exceeding 18 miles an hour; those in the rear being of dual character.

THE ENGLISH ARE SAID to be using air instead of hydraulic presses. In lieu of a ram a cylinder is made like a huge piece of suction hose of fabric and rubber-armored and collapsible, the pressure being secured by pumping air into this cylinder.

GARAGES, RUBBER AND REPAIRS.

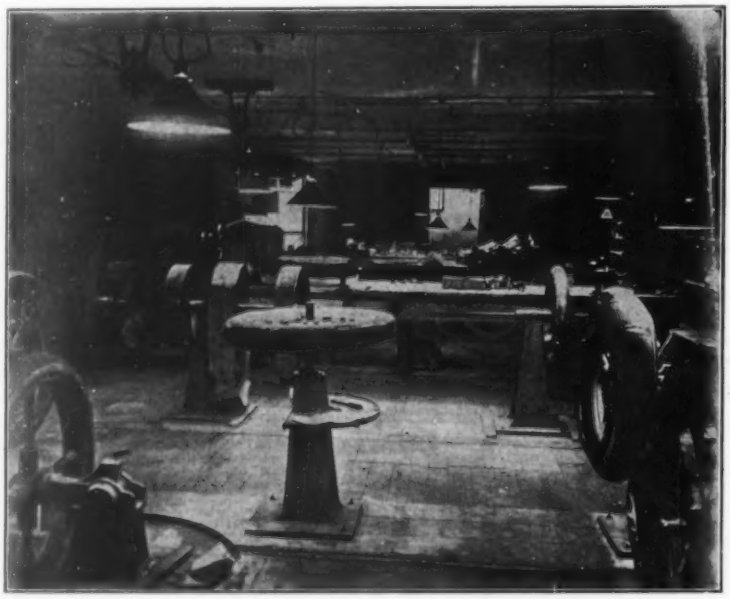
ALMOST every garage, big and little, dips to a degree into the rubber business. For example, they are factors in the waste rubber field for they all advertise "Old Rubber Bought and Sold." But it is in repairing, however. that they really shine as rubber men. Just to size up the business, an INDIA RUBBER WORLD reporter recently visited several garages in and about New York to find out just what was being done.

The first was a tiny place, housing not more than fifteen cars. They, however, made 2,509 repairs last season. Of these 200 were shoes retreaded, 500 sections to repair blowouts, and the rest patching of inner tubes. They guaranteed certain tires where they warranted them to run 1,500 miles after repairing.

A big city garage figured that they did about 1,500 sections a year. For little jobs, such as repairing tubes, cutting down sizes, etc., they claimed that they averaged 50 a day in the busy season, and for the year did about 6,000. Both were equipped with vulcanizers, gas heated, and purchased their stock, cement, etc., from the tire manufacturers.

Talking with the repair men, the following points were deduced.

There are two principal causes for repairs, rim cuts and punctures. The first is brought about by a deflated tire, which may have been occasioned by a puncture or by carelessness in tightening the nipple after inflation, or by some defect in the inner tube or shoe developing while en route. A burst tire often dates back to a bruise on a sharp stone and develops by slow degrees. The bruise has strained the fabric, perhaps split it on the inner ply of the shoe or casing.



TYPICAL AUTOMOBILE REPAIR SHOP.

In repairing a rim cut a section one or two inches wide is removed, and if the duck plies are not seriously worn the fabric is coated with cement, a piece of unvulcanized gum adjusted to replace the part removed and the tire thus repaired is placed in the vulcanizer. Where the fabric is injured care is taken to remove every particle of dirt or sand. Some repairers cut out the worn duck and insert a new piece, others apply cement and make a surface repair. But frequently the injury is deep seated, the shoe being not only burst on the outside, but the duck, to the innermost ply, split longitudinally. Here the repairer gets in his expert work. For the length of the split, plus a couple of inches for working margin, the rubber surface of the shoe is removed. A section of the torn duck is then removed from the first outer ply. Then from the second ply a section is removed, say three-quarters of an inch smaller on all sides than the piece first removed, and so on through all the plies of duck of which the casing is made, giving in appearance a succession of steps, the innermost one corresponding in area to the size of the injured section, the area of each section removed increasing in the manner described. This method gives the patches a margin that ensures secure attachment to the fabric of the tire.

The injured portions having been removed, the surfaces exposed are washed thoroughly with naphtha and coated with cement, then two plies of frictioned fabric are placed on the inner surface of the casing, and so adjusted as to cover the section to be repaired and have a margin for adhesion. The rebuilding of the plies now being fitted nicely to the space cut out for it, and "stitched" down along the edges with a hand roller, care being taken that no air remains between the plies. The last and largest of the duck patches having been applied. the whole is covered with new gum.

The ingenuity of the repairer is further shown at this stage of operation in his preparation of the ply of pure gum that is to supply a new wearing surface for the shoe. After removing the old tread, dove-tailed notches are made in the edges, and in the piece of new gum that is to complete the repair, notches that correspond in size and location. These are adjusted, the one to the other and form a stronger union than could be secured by the abutting of straight edges.

The section wound with strips of muslin is then placed in the vulcanizer, and in 30 minutes, more or less, the job is finished.

The repair of an inner tube is a comparatively simple matter, but it is a mistake to suppose that a surface patch is sufficient. It should be double; one on the inner surface of the tube, and one on the outside at the point of injury, the inside patch being considerably the larger of the two. The surfaces of the tube (inside and outside), are roughened by use of a buffing wheel or emery cloth, and, by use of naphtha, all "bloom" or dust removed. This creates a surface necessary to the proper adhesion of cement. Workmanship comes in here also, to make a patch that will be symmetrical as well as strong, and not a "knob" or lump, that by constant rubbing against the inner surface of the shoe will create in time another weak spot.

To attach a rivet studded leather tread the outer surface of the tire and the inner surface of the non-skidding strip are roughened, cleaned with naphtha and coated with cement, which is allowed to dry for a short interval. The strip is then slipped upon the shoe and the hand roller completes the work. Care should be taken to remove every trace of moisture. Wet weather is said to interfere in no small degree with the production of a satisfactory job.

WHERE the duty on a consignment of oil-resisting hose was recently assessed as "manufactures in chief value of metal," at 45 per cent. ad valorem, the importers protested, claiming a rate of 30 per cent. under the paragraph for flexible metal tubing or hose. The general appraiser sustained the higher rate on the ground that cotton-canvas hose, bound with wire, could not be included under the latter classification.

THE RUBBER TRADE AT AKRON.

BY A RESIDENT CORRESPONDENT.

THE GOOD BLUE STREAKS.

A VERITABLE "blue streak" of success is recorded by the Goodyear Tire and Rubber Co. for their motorcycle tires in connection with July race meetings. At Brooklands track, Weymouth, England, Jake DeRosier, using Goodyear "Blue Streak" tires broke the world's record. He secured two out of three heats in the match race with C. R. Collier. At the race meet held July 22, under the auspices of the Akron Motorcycle Club at Akron, Dan Willis, of Canton, carried off five firsts and two seconds out of eight events. At the Indianapolis State Fair grounds, Baker won fur firsts one day and three firsts the next, incidentally breaking two records. Every one of nine events at Fort Wayne, Ind., was won by machines having Goodyear tires. Anderson, at Elizabeth City, North Carolina, took all five open events on a machine similarly equipped. At Lima, Ohio, de Salvo took four firsts.

THE PORTAGE RUBBER CO.

E. A. Kinsman, formerly with The Diamond Rubber Co., has been secured as foreman of their mill room.

This company has just declared a quarterly dividend of 1¾ per cent. They were enabled to do this through the earnings of The United Rubber Co.'s reclaiming plant at Barberton, which they purchased last Fall.

THE PORTAGE RUBBER CO., BARBERTON, OHIO.

The Portage Rubber Co., of Barberton, commenced operations July 25. Tires and mechanical goods are manufactured. The company has a floor space of 42,000 square feet, well equipped with rubber machinery. Two new designs of solid tires have been developed by the company's experts. They also recently obtained a patent on a new process of reclaiming rubber upon which they have been experimenting for some time.

DIAMOND RUBBER CO.—DIVIDEND.

THE Diamond Rubber Co., Akron, Ohio, on July 20, declared a regular quarterly dividend on the common stock of 3½ per cent.

SWINEHART TIRE AND RUBBER CO.—INCREASE OF CAPITAL.

The Swinehart Tire and Rubber Co., at a meeting of the stockholders, passed a resolution for an increase of the capital stock from $400,000 to $800,000. The company expects to place $250,000 worth of stock on the market at once, and to retain $150,000 worth of stock in the treasury. M. W. Wuchter, superintendent, says that the company also expects to employ 100 more men within the next few weeks, and increase that number from time to time when improvements which were discussed at the last meeting of the stockholders are finished. The company has been working night and day during the past season and claims that it has been unable to cope with the increased volume of business.

FIRESTONE TIRE & RUBBER CO.

THE Firestone Tire & Rubber Co. has greatly increased their office force since moving into their new building. They have also secured property and expect to erect a building at the corner of Conklin and Locust streets, St. Louis, Mo., which they will occupy with a factory branch in the near future, and have

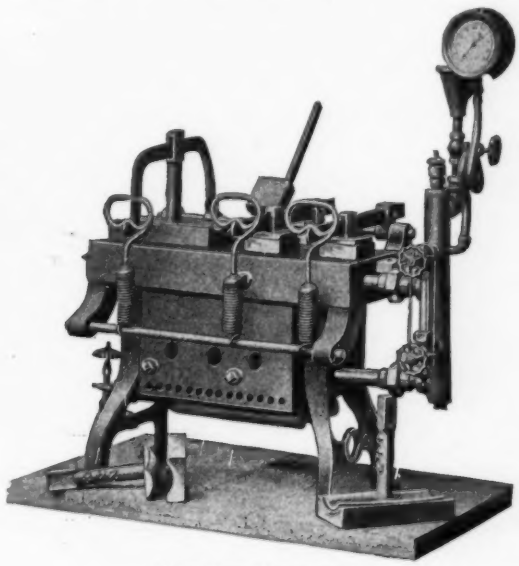
FIRESTONE'S NEW TIRE TREAD.

closed a lease for the premises at 724 Main street, Buffalo, N. Y., to be used for the same purpose. This branch will be in charge of R. W. Ingersoll.

Mr. Firestone says, "That motor racing is the severest test a tire can have, as it is a scientific fact that high speed shows up the strength or weakness of a tire."

WILLIAMS FOUNDRY AND MACHINE CO.

FOR the repair of inner tubes and minor repairs to casings, The Williams Foundry and Machine Co. are about to place on the market an inner tube vulcanizer, 8x20 inches, with three pressure bars, an efficient steam generator, which is fitted with



NEW TIRE VULCANIZER.

burners for gas or gasoline, complete with steam gauge, safety valve, water gauge and filling funnel. A set of three blocks with inner cores to cure small casings is provided to be used with it.

The same company has invented a new clasp-type, boltless vulcanizer head. The following are some advantages claimed for this head:

(*a*) Time Saving.—No bolts to handle in locking or sealing the head. When closed it is instantly sealed by opening a valve.

(*b*) Ease of Operation.—The door of vulcanizers, 36 inches in diameter and smaller, may be counter-weighted and operated

by hand. The larger doors are easily handled by a chain block or power hoist.

(c) Safety.—When closed the cast-steel door and shell rings are encircled by a steel locking ring, the two halves of which are securely clamped together when in the closed position.

* * *

Factory reports say that 1911 will probably be the biggest year in the history of the Akron rubber business. The business last month has surpassed the same month in 1910 by a large margin.

* * *

Outside capital has been looking for a location for another rubber plant in Akron. The parties interested in this enterprise are Eastern people.

The rush of business of the various companies in Akron engaged in the tire manufacturing business has been enormous. Practically all are running night shifts and many orders are turned down. The Firestone Tire and Rubber Co. intended to use their old plant for a rim factory, but if the present stress of trade continues, they will be compelled to use both plants for a tire factory and for the present at least have most of their rims manufactured out of town.

The Miller Tire and Rubber Co. has gone to considerable expense in developing another new tire. This is about ready to be placed on the market.

John Gammeter, head of The B. F. Goodrich Co.'s experimental department and an inventor who has been very successful in developing new machines for the manufacture of rubber goods, has purchased an aeroplane, and is experimenting with the same. If he is as successful in developing this machine as he has been in the past, we may in the future look for some valuable improvements made by him to aid aerial navigation.

THE RUBBER TRADE IN SAN FRANCISCO.

(BY A RESIDENT CORRESPONDENT.)

WHILE there has been a general improvement all around over the business done last year at this time, it is still true that conditions are quiet, and that the amount of business would have to be considerably greater before the rubber merchants could call it prosperous. The business that is being done now is of a substantial quality and the fact that there has been steady improvement is most auspicious. There is no doubt in the minds of any of the merchants but that the tendency is towards better business right along, and that the fall will probably see a very active trade. Commercially San Francisco is showing a healthy growth and all of the dealers are optimistic of the future.

* * *

Edward Helm, who had the management of the Gorham-Revere Rubber Company's branch store in Los Angeles, died from injuries received in a recent automobile accident while riding in that city. His loss is a sad blow to his innumerable friends.

* * *

R. J. Hand, vice president of the Crandley Rubber and Supply Co., has sold out his interest in the firm, and is now with The B. F. Goodrich Co. in San Francisco.

* * *

The local branch of the Pennsylvania Rubber Co. has remodeled its offices and salesrooms at Nos. 512-514 Mission street, so that they can now make as attractive a showing as any other tire and rubber house in the city. The old and unattractive freight elevator just inside the front entrance has been removed and two new freight elevators have been installed, one in the building and one on the sidewalk, as a sidewalk elevator to the basement, both of which greatly improve the shipping facilities. The accounting department has been removed from the top floor to the second, and the salesrooms and private offices have been placed in the front of the main floor. On the main floor the fixtures are all new and modern, and the offices present an unusually attractive appearance. Here J. E. French, the Pacific Coast manager, and his assistant G. J. Brooks have their offices. On this floor a special display is made of the vacuum cup tires, and in the basement a large display is now being made of the Pennsylvania Velvet Tread automobile tires.

* * *

A. H. Gregory, manager on this coast of the New York Belting and Packing Co. has now been nearly a month in Alaska, and will continue his trip through that territory returning about the first of October. He is making a sort of a missionary tour to investigate the possibilities of the entire section, take in all the big dredgers, and attend to whatever business he finds. This firm reports an excellent business for June, and a slight falling off in July, with prospects bright for excellent business in the future.

* * *

Mr. Miller with The B. F. Goodrich company has returned from a very successful trip to Honolulu in the interests of the firm's tire department.

* * *

Mr. Hirsch, traveling representative of the Pennsylvania Rubber Co., is now making a trip through the northwestern territory.

* * *

The Bowers Rubber Works is putting up a new building which will be used exclusively for the manufacture of matting and hose.

* * *

A. W. Savage, of Monrovia, California, has invented a new automobile tire which he intends to market through a new corporation just organized to handle the same. He claims the tire to be puncture proof and one that cannot blow out.

* * *

Herman Fischer, a rubber merchant from Hamburg, has been a recent visitor in this city, stopping at the Palace Hotel.

* * *

The annual picnic was given June 26 by the association of rubber tire dealers of San Francisco at Palo Alto, California. It was attended by the families of nearly all the merchants and was enjoyed by all. There were games, baseball, a tug-of-war, boxing, etc. Among the men most active in the management of the picnic were C. M. Cummings, of the Michelin Tire Co., and A. C. Leonard, manager of the western branch of the Goodyear Tire and Rubber Co.

* * *

F. O. Nelson, manager of the Los Angeles branch of The Diamond Rubber Co., has returned to that city after a vacation trip to San Francisco by automobile accompanied by his wife.

* * *

Joseph Weston, coast manager for the United States Tire Co., returned recently from his business trip to Los Angeles, where he reports he found business to be in a very favorable condition.

* * *

The B. F. Goodrich Co., has been giving complimentary moving picture displays and lectures regarding the rubber industry in the Valencia Theatre. The lectures are given by F. M. Tillischi.

* * *

The Goodyear Rubber Company is now operating two new auto trucks, one a delivery truck and the other for freight. This firm will have its new calender and mill in operation at the factory by the first of the month.

* * *

The American Rubber Manufacturing Co. has purchased the bulk of the machinery from the factory of the defunct Barton Packing and Rubber Co., including the presses, calender, etc. The remainder of the machinery was taken by the Plant Rubber and Supply Co.

News of the American Rubber Trade.

STANDARD WOVEN FABRIC CO.—A NEW CORPORATION.

The Standard Woven Fabric Co., Worcester, Mass., organized in March last, with a capital of $400,000, and of which George D. Moore is president, A. H. Burdick, treasurer, and T. J. Daley, clerk and secretary, has taken over the business of the Multiple Woven Hose & Rubber Co., of that city. The latter company, founded in 1904 by George D. Moore, established a flourishing business as manufacturers of woven hose and woven belting and of the "Multibestos" brake lining, a friction fabric largely used as a lining for automobile friction brakes, and the brake bands of hoisting, cable-winding and similar machinery. Under the new company it is proposed to considerably extend the manufacturing facilities and provide for the increased output which the growing business demands.

THE BOSTON BELTING CO.'S OLD AND NEW FACTORIES.

AWAY back in 1828, before the discovery of vulcanization by Goodyear, there was a three-story building belonging to the Roxbury Rubber Works that later become historic. The building still exists in good repair and is part of the present plant of the Boston Belting Co. In the accompanying illustration it shows in the middle of the picture, distinguished by being lighter colored than the rest. At the extreme right in contrast to the pioneer factory is the latest addition to the company's plant, a fine modern "mill construction" edifice.

FACTORIES OF BOSTON BELTING COMPANY, BOSTON, MASS.

SOME NEWS OF THE UNITED STATES RUBBER CO.

THE recent interpretation of the anti-trust law by the Supreme Court of the United States, and its effect upon the Standard Oil Company, has given rise to many rumors. There was, for example, a rumor that the United States Rubber Company was planning to re-organize. President Samuel P. Colt was therefore at once interviewed. He said:

"There is absolutely nothing to warrant any such impression. We do not know of anything that we have to reorganize. In every respect, we are conducting our affairs within the law, as interpreted by the Standard Oil and American Tobacco cases."

In another interview given to the *Wall Street Journal* (New York) Colonel Colt said:

"Our output of mechanical goods for the last two months has been about 25 per cent. below the corresponding months last year. Boot and shoe sales are also much below 1910, and we find very little desire to purchase by the jobbers. Our plants at present are working only about 60 per cent. of capacity.

"If business conditions in the fall show improvement I expect to see a betterment in the demand for rubber goods. Retailers, I find, are not anxious to purchase, although I do not believe that they had any great quantity of goods left over from last year. A year ago they showed the same feeling as now in regard to buying and for that reason no large stocks were held over. If better weather conditions prevail in the fall I expect to see business improve.

"According to present indications it is possible that our usual summer shutdown will be of longer duration than has been customary of recent years. We usually shut down our plants during the month of August, but this summer we may also close during the latter part of July. Our summer shut-down is partially necessitated because the crude material is sticky during that time and difficult to work with.

"All of our tire plants are working at capacity. We have also opened our Providence plant which formerly turned out the Continental tires and which has been shut down for some time. I find that the demand for tires is steadily increasing as the season progresses and do not believe early estimates of a pessimistic nature will be realized."

"The automobile industry," Colonel Colt continued, "I believe to be still in its infancy and I expect to see a steadily increasing demand over the next few years. I do not believe that we can even attempt to estimate the output of cars of all classes ten years from now. Naturally the greatest increase will be in the commercial cars, but I expect that there will be a steady increase in all classes."

A FLOURISHING BUSINESS.

HARMER Rubber Reclaiming Works, East Millstone, N. J., are distributing to the trade a blotting stone with a photograph of their works—a souvenir of their first anniversary. The company has made very satisfactory progress during the first year of their career. In addition to a full line of mechanical reclaimed rubber, they have just completed the installation of new machinery for reclaiming boots and shoes and auto tires on a large scale. The officers of the company are: Thomas W. Harmer, president and general manager; I. Laurie, vice-president; A. Marcus, secretary and treasurer.

B. & R. RUBBER COMPANY INCREASE CAPITAL.

BY the issue of 1,000 shares of preferred stock, at a par value of $100 per share, the B. & R. Rubber Co., North Brookfield, Mass., has increased its capital stock from $400,000 to $500,000. The increase in capital will be utilized for additional equipment and for an addition to the present mill room, the added facilities being warranted by a growth of the company's business this year, as compared with 1910, of about 22 per cent.

CONTINENTAL HOSPITALITY.

ON their way to the recent meeting of the Federation of American Motorcyclists, held in Buffalo, N. Y., the delegation from Cleveland, Ohio, and vicinity, upwards of a hundred in number, were entertained at lunch by the Continental Rubber Co., Erie, Pa., a large tent having been erected for the purpose.

RUBBER GOODS AND TRADING STAMPS.

The Green Trading Stamp has at last invaded the rubber business. According to Sperry & Hutchinson's "List of Tokens" certain companies give with purchases of their goods "Hamilton Bonds and Coupons." These in turn are exchanged for Green Trading Stamps. The list as far as the rubber trade goes is:

Canfield Dress Shields, 1 stamp for 2 coupons.

Omo Dress Shield, 1 stamp for 2 coupons.

Great American Standard Chewing Gum, 1 stamp for 12 wrappers.

Badgley's Rubber Heels, 1 stamp for 1 ten-cent Hamilton Coupon.

Now that the thin edge of the wedge has entered it will not be long before buyers of elevator belting, deckel straps and suction hose will be carrying stamp books.

WALPOLE RUBBER CO.—DIVIDEND.

THE Walpole Rubber Company, Walpole, Mass., have recently declared the regular quarterly dividend of 1¾ per cent. on their preferred and 1 per cent. on their common stock.

UNITED STATES RUBBER COMPANY—DIVIDEND.

THE United States Rubber Co., New York, declared on July 6, regular quarterly dividends of 2 per cent. on the first preferred and 1½ per cent. on the second preferred stocks.

CANADIAN CONSOLIDATED RUBBER CO., LIMITED—DIVIDEND.

THE regular dividends of 1¾ per cent. on the preferred and 1 per cent. on the common stock of the above company were paid July 3.

NEW SOUTH BEND (IND.) RUBBER FACTORY.

The South Bend Tire and Rubber Co., of South Bend, Indianapolis, recently financed by Akron and Mansfield men, claim that they will employ from 200 to 300 men at the start. The directors of this company are: President, William Blecker, Akron; vice president, W. A. Bently, Mansfield, secretary, M. V. Bently, Mansfield.

VACATION NOTES.

Colonel Samuel P. Colt, president of the United States Rubber Co., is passing the greater part of the summer at his home in Bristol, Rhode Island, with occasional motor trips to interesting points around New England.

James B. Ford, vice-president and treasurer of the United States Rubber Co., will join the August cruise of the New York Yacht Club in his yacht "Katrina."

J. Howard Ford is passing the summer at his farm at Stony Ford, in Orange county, New York. It is said to be one of the handsomest places in the state.

H. B. Hubbard, auditor of the United States Rubber Co., is an enthusiastic motorist. He left New York on July 26 for a two weeks' tour of New England in his car.

John D. Carberry, assistant secretary of the United States Rubber Co., who has been badly troubled with rheumatism for the last two months, is on his farm at Orwell, Vt., and reports that his health is greatly improved.

H. E. Sawyer, general manager of the United States Rubber Co., is passing the summer at Hotel Mt. Washington, at Bretton Woods. He expects to remain till Labor Day with occasional flying trips to New York.

Edward R. Rice, sales agent of the United States Rubber Co., is at Kennebunk, Maine, until September.

John P. Lyons, advertising manager of United States Rubber Co., spent his vacation at Bloomfield, New Jersey.

Wm. M. Morse, of the Boston-Panama Co., is here for a month's vacation after two years spent on the Azuero lands in Panama.

F. H. Jones, president Tyer Rubber Co. (Andover, Massachusetts), spent the larger part of July at Bar Harbor, Maine.

THE PRESIDENT OF THE FEDERAL.

Few young men in the rubber trade have risen to important positions more rapidly and surely than has President Byron L. Dowse, of the Federal Rubber Mfg. Co. Beginning in 1895

PRESIDENT BYRON L. DOWSE.

with the Gormully & Jeffry Mfg. Co., continuing with the company after its absorption by the Rubber Goods Co. in 1899, as general representative, selling agent for the middle west, and finally president of the G. & J. Co., he was from first to last a business builder.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks, ending July 22:

COMMON STOCK, $25,000,000.

[The treasury of a subsidiary company holds $1,334,000.]

Last Dividend, April 30, 1900—1%.

Week July 1	Sales 11,400 shares	High 43⅛	Low 40⅝
Week July 8	Sales 3,800 shares	High 42¼	Low 41
Week July 15	Sales 1,500 shares	High 42½	Low 41¾
Week July 22	Sales 3,300 shares	High 42⅛	Low 41½

For the year—High, 47⅞, March 1; Low, 36, January 6.
Last year—High, 52½; Low, 27.

FIRST PREFERRED STOCK, $39,824,400.

Last Dividend, April 29, 1911—2%.

Week July 1	Sales 500 shares	High 114⅛	Low 113⅞
Week July 8	Sales 1,000 shares	High 115½	Low 114¼
Week July 15	Sales 405 shares	High 115½	Low 113
Week July 22	Sales 475 shares	High 113½	Low 113

For the year—High 115½, July 7; Low, 109½, January 18.
Last year—High, 116½; Low, 99.

SECOND PREFERRED STOCK, $9,965,000.

Last Dividend, April 29, 1911—1½%.

Week July 1	Sales ... shares	High ..	Low ..
Week July 8	Sales 200 shares	High 77½	Low 77½
Week July 15	Sales 200 shares	High 76⅞	Low 76¾
Week July 22	Sales 300 shares	High 76½	Low 76½

For the year—High, 79, March 1; Low, 72½, January 31.
Last year—High, 84; Low, 59½.

SIX PER CENT. TRUST GOLD BONDS, $19,000,000.

Outstanding of the 1908 issue of $20,000,000.

Week July 1	Sales 40 bonds	High 105	Low 104⅝
Week July 8	Sales 39 bonds	High 105	Low 104⅞
Week July 15	Sales 54 bonds	High 105	Low 104¾
Week July 22	Sales 66 bonds	High 104⅞	Low 104

For the year—High, ——; Low, ——.
Last year—High, ——; Low, ——.

STANDARD OIL CO. ACCUSED OF INFRINGING PATENTS.

SUIT has been commenced by the Standard Asphalt and Rubber Co. against the Standard Oil Co., for infringement of patents owned by the complainant corporation since 1898, on methods of treating asphaltum with petroleum, whereby cost of production is greatly decreased. By the unlawful use of these patents, it is alleged that the oil company has been able to compete unfairly with the asphalt and rubber company.

RECENT ADDITION TO CANADA'S RUBBER FACTORIES.

CANADA'S latest rubber factory, which we have before mentioned, is the Independent Rubber Company, Limited, situated at Merritton, Ontario. At first thought it seems far away from the American centre of things until one learns that the factory is only about 10 miles from Niagara Falls when it seems much

INDEPENDENT RUBBER CO., LIMITED, MERRITON, ONT.

nearer. The works are driven by water power entirely and equipped with the very latest and best rubber shoe machinery. The factory has a capacity of some 10,000 pairs a day. Two men well known to the American rubber trade are connected with it—Mr. James Robinson, who is president, and Mr. R. F. Foote, manager.

NEW INCORPORATIONS.

A. S. BROCK RUBBER Co., June 19, 1911, under the laws of Massachusetts; authorized capital, $25,000. Incorporators: A. S. Brock, Saugus, Annie L. Learning, Saugus, and George E. Andrews, Brockton, all of Massachusetts. To manufacture and sell rubber goods and sundries.

Euclid Rubber Co., July 5, 1911, under the laws of New York; authorized capital, $1,000. Incorporators: Frank N. Rodman, Maplewood, New Jersey; Perry Schoonmaker, M. D. Euclid Hall and Linda J. Schoonmaker, both of New York City. To manufacture surgical and rubber goods. Location of principal office, New York.

Greater New York Royal Rubber Co., July 12, 1911, under the laws of New York; authorized capital, $10,000. Incorporators: Max Weingarten, Brooklyn, New York; Philip Friebram, Abraham Samlson, both of New York City. Location of principal office, 8686 Bay Sixteenth street, Brooklyn, New York. To manufacture rubber clothing, etc.

Lee Tire and Rubber Co., June 16, 1911, under the laws of Pennsylvania; authorized capital, $100,000. Incorporators: J. Ellwood Lee, Albert A. Garthwaite, Samuel Wright, Maurice O'B. Hallowell, Charles Heber Clark, all of Conshohocken, Pennsylvania; and J. W. Johnson, C. A. McCormick and F. R. Jones, all of New Brunswick, New Jersey; and J. C. Delacom, Camden, New Jersey. To manufacture and sell goods and appliances, etc., composed wholly or partially of rubber.

The McEwan Vulcanizing Co., June 23, 1911, under the laws of New York; authorized capital, $20,000. Incorporators: Frederick E. McEwan, 562 West One Hundred and Sixty-Fourth street, New York; Warren L. Cort, Roosevelt, New York; Harry W. Beals, Brooklyn, New York. To manufacture vulcanizers.

The Manufacturers' Rubber and Supply Co., June 14, 1911, under the laws of Ohio; authorized capital, $10,000. Incorporators: R. F. Dutt, R. T. Griffiths, William F. Pfeiffer, Frank C. Millhoff and H. E. Andress. The company has been incorporated for the purpose of producing, buying, selling, jobbing and dealing in, either at wholesale or retail, all kinds of rubber goods, etc.

The Minneapolis Auto Tire Repair Co., June 29, 1911, under the laws of Minnesota; authorized capital, $20,000. Incorporators: Walter D. Rightmire, Blanche Rightmire and Ben O. Kleven. The company has been incorporated to buy and sell and repair automobile tires.

Sheridan Tire and Rubber Co., June 24, 1911, under the laws of Illinois; authorized capital, $2,500. Incorporators: Arthur A. Levisohn, Percival Steele and Ida Slora. The company has been incorporated to manufacture, repair and sell rubber tires, etc.

Standard Raincoat Co., June 26, 1911, under the laws of New York; authorized capital, $40,000. Incorporators: Wm. Schor, Cleo Schor and Charles Pechner, all of New York. To manufacture waterproof coats.

Standard Woven Fabric Co., March 16, 1911, under the laws of Massachusetts; authorized capital, $400,000. Incorporators: Herbert F. Banas, John E. Clarke and Wm. K. Wheeler, all of Athol, Massachusetts. The company has been incorporated for the purpose of dealing in belting, hose and woven fabrics.

Vulcan Rubber Co., June 20, 1911, under the laws of Pennsylvania; authorized capital, $100,000. Incorporators: M. Liebel, Jr., Erie, Pennsylvania; Eugene Liebel, Oil City, Pennsylvania; William Kaul, St. Mary's, Pennsylvania; Frank Kaul, St. Mary's, Pennsylvania; Frank Oberkirch, St. Mary's, Pennsylvania; and Bernard Cochran, Erie, Pennsylvania. To manufacture and sell rubber goods and products, etc.

TWO OF GRANBY'S HISTORIC SPOTS.

THE house on the right is the residence of the late S. H. C. Miner. In the two-story building at the left was a tiny office,

HOME AND OFFICE OF THE LATE S. H. C. MINER, AT GRANBY, P. Q.

a favorite place, where he transacted a great deal of his widely diversified business.

CATCH PHRASES FOR TIRES.

The alert advertising men are ever in search of striking illustrations, apt descriptions, and easily remembered catch phrases. Here are what they have evolved for automobile tires.

B. F. Goodrich Co.: "Best in the long run."
Hartford Rubber Works: "The tire that lasts."
Morgan & Wright "tires are good tires."
Diamond Rubber Co.: "Are the best tires."
Fiske Rubber Co.: "The tires that wear."
Federal R. Mfg. Co.: "The tire that won't blow out."
Firestone Rubber Co.: "Quality-Service."
Continental Tire & Rubber Co.: "The world's best."
Goodyear Tire & Rubber Co.: "Oversize, can't cut rim."

TRADE NEWS NOTES.

THE interesting exhibit of the Continental Rubber Co., New York, at the recent Rubber Exhibition in London, under the management of Mr. Van der Linde, was notably successful in attracting the attention of practical visitors.

With additions of 2,000 to the working force of the Goodyear Tire and Rubber Co., and 2,000 to the employes of the Firestone Tire and Rubber Co., it is easy to see where the ten-thousand increase in the population of Akron, Ohio, comes from.

The Acushnet Rubber Co. has started, in New Bedford, Massachusetts, to extract rubber from low-grade gums.

The Pennsylvania Rubber Co. is making a decided success of the Polak solid tires for trucks.

Ladders for high tapping on *Castilloa* trees were shown at the London Rubber Exhibition by the inventor, Mr. Graves, of the Mutual Rubber Production Co. No. 1, Chiapas, Tabasco, Mexico. He was awarded special mention for his exhibit.

Hot weather, the necessity for extensive repairs and improvements, and—in some cases—shortage of orders, resulted in a more than usually prolonged shutdown of important rubber factories this summer. Among the plants affected may be mentioned those of the Boston Rubber Shoe Co., at Edgeworth and the Fells, Massachusetts; the Alice and Millville mills of the Woonsocket Rubber Co.; the National India Rubber Co., Bristol, Rhode Island, and nearly all the factories at Naugatuck, Connecticut.

W. J. B. Stokes, president of the Home Rubber Co., Trenton, New Jersey, is traveling in the West.

The business of the Newark Tire Repair Co., of 21 Camfield street, Newark, New Jersey, has been purchased by Dan H. Smolk, who was connected with the Goodrich Tire Co. for the last four years. He will continue the business and will carry stock of all makes of tires; likewise doing vulcanizing and repairing.

W. F. Bass, vice-president and general manager of the General Rubber Co., and W. H. Blackwell, treasurer of the same company, sailed for Europe on a business trip July 5. Mr. Blackwell returned on the 28th. Mr. Bass is expected back about the middle of August.

A. T. Holt, formerly superintendent of Whitall Tatum Co.'s rubber sundries factory, is now located at Columbus, Ohio.

The L. & M. Rubber Co., Carrollton, Ohio, have equipped a plant for the manufacture of automobile tires and will do business under the trade mark of the "Buckskin Brand." H. L. Miller, formerly with the Miller Rubber Co., Akron, Ohio, is connected with the company.

A new firm in New York as importers and brokers in crude rubber are Eggers Brothers & Co., with an office at No. 16 Exchange place. The members of the firm are Alfred C. and Ludwig T., both sons of Mr. Anton Eggers, of the Goodyear's Rubber Glove Co. The company have excellent foreign connections and will handle everything in the line of crude rubber, gutta percha, balata, etc.

W. C. Coleman, of the American Wax Co. (Boston, Massachusetts), was not only successful in interesting many visitors to the International Rubber Exhibition in "Amax," but secured Heilbut Symons & Co. as sole agents for the United Kingdom.

The Interstate Rubber Co., Cleveland, Ohio, organized to deal in rubber surfaced and waterproof clothing, has for its officers W. J. Anderson, president, and A. E. Wurster, secretary and treasurer. Both were formerly connected, in a selling capacity, with the Ohio Rubber Co., of Cleveland. They have fitted up sample room, shipping and stock rooms at 1390 West Ninth street, Cleveland.

Rubber Heels, made in England, including revolving heels, are on sale in Canada, as for example, the Wood-Milne heel.

In his six-day trip from Hartford to Chicago, Mr. Suisman, a representative of the Hartford Rubber Works Co., purposely came to New York city to try out its bad roads.

MR. MINER'S PROPHECY FULFILLED.

Just a year ago the late S. H. C. Miner commenting on the high price of crude rubber said:

"So they look for $3 rubber, and may be $4 rubber, do they, almost all of them? The great majority sadly predict continued high prices? I'm glad they do, for majorities are usually wrong. Personally I am just as sure of seeing dollar rubber again as I am sure that I have ever seen it. All of this fine Pará that has gone into automobile tires forms a huge sinking fund for us. When we begin to spend it, crude rubber will accumulate; for awhile big operators and wealthy manufacturers will stock up at high prices, but they will soon tire of that, and then prices will tumble. Few appreciate what plantation rubber will do for us in the next five years. Where we get 4,000 tons now, we will be receiving 40,000 or 50,000 tons. Then, too, I see the beginning of a greatly stimulated production of wild rubber. The drop won't come in a minute, but it will come, and dollar rubber some time in the future is a certainty."

THE "WIRE TRUST" IN COURT.

FINES aggregating $43,000 were imposed by Judge Archibald on July 25, upon 37 out of the 83 individuals indicted in connection with the Government's prosecution of the so-called "Wire Trust." This result arose from the plea of *"nolo contendere,"* equivalent to pleaidng guilty. Amongst the parties against whom indictments had been issued were Ferdinand and Carl Roebling, of the Roebling's Sons Company, Herbert L. Satterlee, president of the Habirshaw Wire Company, and officers of the American Steel and Wire Company.

Ferdinand W. Roebling, who had been indicted under several counts, was amongst those who pleaded and was fined $1,700, the heaviest amount imposed. Mr. Satterlee was not present to plead. The answers of other defendants are expected at an early date.

PERSONAL MENTION.

R. B. BAIRD faithfully attended every meeting of the various important committees of which he was a member at the Rubber Exhibition in London.

Webster Norris, formerly superintendent of the New York Rubber Co., is spending the summer at Christmas Cove, Maine.

"Dan" C. Swander, of the Firestone Tire and Rubber Co., Akron, is making a hit as a lecturer and writer on tire topics.

Commodore E. C. Benedict, of the United States Rubber Co., when last in Brazil presented the Mayor of Pará with a copy of "A Souvenir of Indian Harbor," in which he had inscribed: "His Excellency Senator Antonio Lemos. This is simply a finger-board, to direct you to my home, where a warm welcome awaits you."

When William T. Baird and Robert B. Baird, of the Rubber Trading Co., New York, desire to go to Europe, or off on long motor trips, they have two excellent business proxies in their sons, R. L. Baird and C. W. Baird.

J. C. Stedman, M.D., physician to the Rubber Club of America, went to Europe August 1.

A. W. Stedman, of the New York Commercial Co., golf enthusiast, played 36 holes at the Country Club, Brookline, Massachusetts, on July 4, with the thermometer 104 in the shade.

John K. Mitchell, of Philadelphia, president of the Philadelphia Rubber Works Co., is in Europe.

Hon. L. D. Apsley, president of the Apsley Rubber Co., Hudson, Massachusetts, is back from Europe.

Frederic C. Hood, treasurer of the Hood Rubber Co., Boston, returned from Europe just in time to take charge of the mid-summer outing of the Rubber Club of America and to take part in the 25th anniversary of the class of '86, Harvard, of which he was a member.

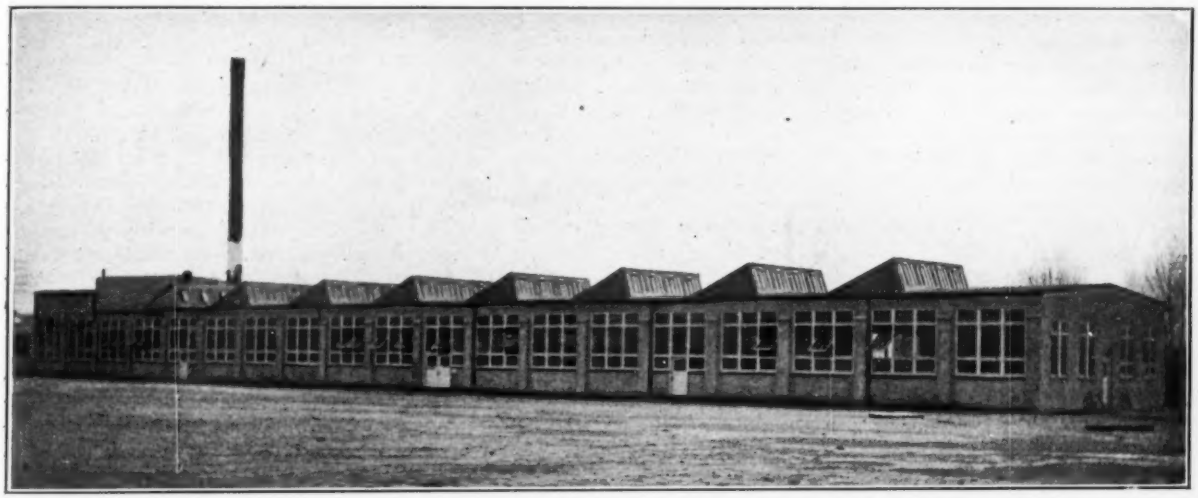
George B. Hodgman, president of the Hodgman Rubber Co. (New York) goes on a long trip in the state of Maine the middle of August.

THE LATEST PLANT FOR MANUFACTURING DRUGGISTS' RUBBER SUNDRIES.

Whitall Tatum Company, New York, manufacturers of glassware and druggists' sundries, have erected at Keyport, New Jersey, a factory for the manufacture of rubber sundries for druggists, that is a model of its kind.

The main building is 282 feet in length and 50 feet wide, built fireproof, of hollow-tile construction, with cement finish. There is ample ventilation of the building, electricity being used for artificial illumination and for the operation of the smaller machines, tumbling barrels, etc., the spreader and churns being also operated by electric power.

These, with a 350 horsepower Cooper-Corliss engine, three boilers of 250 horsepower, two washers, three mixers and two calenders of Birmingham make, with four vulcanizers, a vacuum dryer, tubing machine and presses, constitute the equipment of heavy machinery. An ample supply of water is obtained from the town and the property, which comprises some 12 acres, fronts on the Central Railroad of New Jersey, from the tracks of which a switch is run into the factory grounds.



WHITALL-TATUM CO.'S RUBBER WORKS.

Connected with the main factory is a second building, of fireproof construction with concrete roof hung on girders of the same material, 90 feet in length and 25 feet wide, which is devoted entirely to spreading and dipping.

The original glass business of the firm was started at Millville, New Jersey, in 1806, the firm name being changed to Whitall, Tatum & Company in 1857; in 1901 it was incorporated as Whitall Tatum Company. The company's flint glass factories at South Millville occupy buildings covering some twenty-one acres, while the green glass factories, at Millville, cover about eleven acres. A third glass plant has lately been opened by the company, at Stroudsburg, Pa., all the establishments being equipped with the completeness that distinguishes the rubber works at Keyport.

UNITED STATES RUBBER CO.—NEW BUILDING.

PLANS have been approved and a contract awarded for the new office building the United States Rubber Co. will erect in New York. In altitude and dimensions, the new building will rank with the great skyscrapers of the metropolis, twenty-one stories, or 321 feet, with basement and sub-basement, having been determined upon for its height, while its area will be 120x100 feet. Nor will it suffer by comparison with the finest of the city's business buildings in architectural beauty. The exterior walls will be of marble, the frame, as in all buildings of this character, will be of steel, the interior finish oak and Vermont marble, and it will conform with every requirement as to fire-proof construction. The general offices of the company will be housed in the building, any superflous space will be rented as offices. Broadway, at Fifty-eighth street, will be the site of the building, which it is planned to complete inside of a year.

RUBBER TILING AT EMPIRE BUILDING.

As an illustration of the enduring qualities of rubber tiling, interest attaches to the fact that at the Empire Building, Broadway, New York city, with its 100,000 persons entering daily, the original black and white marble slabs in the main corridor only lasted about three months. By the substitution of rubber tiling no repairs were needed for twelve years.

GEORGE WESTINGHOUSE HAS A NEW AUTO TIRE!

IT is stated that George Westinghouse, of air-brake fame, has invented a new tire for automobiles, in which the resilient feature is produced by the use of air springs in place of rubber. That the mechanical genius, to which the world is indebted for so many important discoveries, should have been turned to the perfection of a substitute for the rubber tire, is not by any means remarkable, almost all inventors having at one time or another given this subject their attention. As to the truth of the statements appearing in the press, that the employment of thousands of workmen in the near future in the manufacture of the new tire was projected and complete manufacturing arrangements perfected, that remains to be seen. If the published descriptions of the invention are founded only partially on fact, the new tire is not likely to seriously affect the price of crude rubber or the demand for rubber tires.

CHICAGO STAMP TRADE CONVENTION.

WITH an attendance of about 130 representatives from various parts of the country the Stamp Trade Convention, held at Chicago, June 20 to 23, made a goodly showing.

Special interest attached to the organization of the International Stamp Manufacturers' Association, the title indicating the comprehensive scope of the new body intended to forward the interests of the trade. Mr. M. L. Willard was elected president of the association, in the formation of which he had been most energetic.

Business and official matters occupied a large portion of the time, but among general subjects was an address by Mr. Louis Melind on "Costs of Production." Next year's Convention will be held on June 19, 20, 21 and 22 at New York City.

AMERICAN CHEMICAL SOCIETY.

The forty-fourth general meeting of the American Chemical Society, was held at the German House, Indianapolis, Indiana, and was in session from June 27th to July 1st. At the general meeting of the Society some interesting papers were read, and subsequently meetings of the Physical, Inorganic and Biological sections were held, all of which were well attended, some 400 members being present. Meetings of the Fertilizer, Industrial and Physical divsions, and of the sections of Biological and India Rubber Chemistry were also held, the latter being an informal meeting at which the advisability of continuing the rubber section was discussed, also means of increasing the activity and interest of members, in its work.

At the adjourned meeting of this section, held later in the day, Dr. Oenslager was elected temporary presiding officer in the absence of the chairman. A preliminary report of progress was made by the Committee on Methods of Analysis, in which it was stated that the committee was not ready to report on any method.

The Committee on Specifications made a report, and were discharged with thanks. This report suggested that the Council of the Society appoint a committee on specifications of rubber goods. Such committee to act in conjunction with a similar committee from the Division of Industrial Chemists. This recommendation was adopted and the Council has accordingly been petitioned to appoint the committee.

A lengthy discussion on the question of methods of analysis was then held, and it was finally voted that all members of the Section be asked to furnish the Committee on Methods of Analysis with their methods for the determination of acetone extract, free sulphur, total sulphur, and ash in rubber compounds. Also that samples of rubber when sent out be sent to all the members of the Section who expressed a willingness to make co-operative analyses for purposes of comparison.

The question of arousing the interest of members of the Section in its work, occupied most of the time of the session, manufacturers being urged to allow their chemists to communicate, in confidence, if desired, the methods of analysis employed in their laboratories and to permit the active co-operation of the chemists in the work of the Section. Members were also invited to correspond with the secretary, Frederick J. Maywald, 89 Pine street, New York, on the subject of the work of the Section.

PERSONAL MENTION.

Francis H. Holton, who comes pretty near being the dean of the rubber sundries business, is 80 years of age, hale and hearty, and lives in Akron. He still takes a deep interest in everything in rubber, although he has retired from active practice in factory troubles.

Charles A. Daniel, proprietor of the Quaker City Rubber Co. (Philadelphia, Pennsylvania) has just returned from a somewhat lengthy European trip.

John S. Singleton, advertising manager for the Firestone Tire & Rubber Co., has gone to Europe.

Thomas A. Forsyth, president of the Boston Belting Co., and Patten, the Chicago cotton king, recently found common interests when the latter examined the plans for the magnificent Forsyth Dental Infirmary. Something of the kind is said to be contemplated for the West by Mr. Patten.

Seymour J. Camp, foreman of the Derby Rubber Co., Derby, Conn., had a narrow escape when a tire of the automobile in which he was riding with a friend, burst, causing the car to crash into the rail of a bridge they were crossing. His companion was hurled from the car, over the rail into the river. The car, in which Mr. Seymour remained, lodged on the edge of the bridge, overhanging the water thirty feet below. He was badly bruised and shaken up.

TRADE NEWS NOTES.

At a recent meeting of the Council of the town of Granby, William H. Miner was elected a member of that body, to take the place of S. H. C. Miner, deceased. Mr. Miner has also been elected on the boards of various church organizations and town committees on which his uncle served.

The Vulcanized Rubber Company, New York, announce their removal to their new offices and salesroom in the Gramercy Building, 251 to 255 Fourth avenue, corner of Twentieth street.

The Plymouth Rubber Co., Stoughton, Massachusetts, have removed to their new office and salesroom, 11 West 17th street, New York, which will be in charge of Messrs. T. Frank McCarty and Joseph M. Sydeman.

The Goodyear Tire and Rubber Co., Akron, Ohio, is constantly adding to the number of its agencies. Recent additions are a branch at 723-25 South Olive street, Los Angeles, California, in charge of E. Lingenfelder; 361-63 Golden Gate avenue, San Francisco, California, in charge of A. C. Leonard; 1172 Bedford avenue, Brooklyn, T. C. Coleman, manager, and 26 High street, Hartford, Conn., in charge of E. S. Edwards.

Fisk "Gripfast" motorcycle tires made a record for themselves at New Orleans recently when an "Indian" motorcycle, equipped with them, won three of the principal events.

R. H. Pease, Jr., made an extensive trip through Japan in behalf of the Goodyear Tire and Rubber Co. He reports that the people of Japan are taking an active interest in the manufacture of rubber goods, rubber packing in particular. A complete line of rubber goods of Japanese manufacture was exhibited at Kobe. Mr. Pease believes this active interest on the part of Japan in the manufacture of rubber goods will in time seriously affect the importation of American made goods. The various branches on the Pacific Coast have been largely interested in the development of American importations in Oriental countries.

The grotesque and strangely appareled Michelin twins, who proved so attractive an advertisement for Michelin tires in Europe, and whose appearance will be familiar to those who have seen the "Bibendum" books issued by the Michelin Tire Co., Milltown, New Jersey, have located at Coney Island, New York, for the current season. Whether their unique "makeup" and antics will prove as attractive as in Europe, where they were the subject of universal press comment, remains to be seen.

Charles R. Flint is still in the amalgamating business. His company, Charles R. Flint & Co., bankers, recently merged four companies making computing and tabulating appliances. The new combine is called the Computing-Tabulating-Recording Co.; its capitalization including $12,000,000 stock, and $7,000,000 6 per cent. thirty year sinking fund gold bonds. The companies were the International Time Recording Co., the Tabulating Machine Co., the Computing Scale Co., and the Bundy Manufacturing Co.

On the evening of July 7, lightning struck a barn on the country estate of Charles H. Arnold, Stonehame, Mass., of Poel & Arnold, rubber importers, New York. The barn was burned, but a sudden shift of the wind, saved the garage, outbuildings and the big colonial mansion.

The Buckeye Rubber Co., Akron, Ohio, has been granted permits for the erection of several new buildings, the total cost of which will be $60,000. One 60 x 80 feet and four stories high, a thoroughly fireproof structure of brick and concrete, will be used for manufacturing purposes. Another, a one-story structure, 40 x 225 feet, will be an addition to the shipping and stock rooms.

The waterproofing and insulating specialties of the J. A. & W. Bird Co. (Walpole, Massachusetts) have been transferred to the Flintkote Manufacturing Co., of Rutherford, New Jersey.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED JUNE 6, 1911.

NO. 994,118. Pneumatic bulb for horns. J. A. Broadfield, Philadelphia, Pa.
994,174. Resilient wheel with pneumatic tube. J. C. Matheson, San Francisco, Cal.
994,210. Protector for pneumatic tires. D. B. Stevenson, Rankin, Pa.
994,230. Hose coupling. W. J. and J. H. Yancey, Brockton, Mass.
994,237. Divisible rim. F. R. Barker, Boston, and J. Greenwood, Walpole, Mass.
994,247. Removable tubular rim. J. C. Cole, assignor to The Fisk Rubber Co.—both of Chicopee Falls, Mass.
994,455. Hose support. T. J. Glover and John B. Laber—both of Portland, Oregon.
994,558. Pump for liquid sprayers. L. A. Aspinwall, assignor to Aspinwall Mfg. Co.—both of Jackson, Mich.
994,610. Automobile tire. A. D. Simpson, Orion, Kansas.
994,611. Means for raising sunken vessels. J. Skatschkoff, St. Petersburg, Russia.
994,644. Adjustable tire support. E. W. Kingsley, Los Angeles, Cal.
994,664. Hose-coupling applying implement. W. Tankersley, La Junta, Colo.

Trade Mark.

33,924. Atlas Chain Co., Brooklyn, N. Y. The word *Atlas*. For anti-skid chains.

ISSUED JUNE 13, 1911.

994,723. Hose coupling. F. Davis, Atlanta, Ga.
994,759. Combined eraser and pen extractor. F. H. Lamoreux, Smithshire, Ill.
994,762. Hose coupling. J. Lehmann and M. Woltek, Wellsville, N. Y.
994,780. Spraying attachment for garden hose. G. Olney, Hobart, Tasmania, Australia.
994,861. Hose and gasket. A. P. Miller, Chicago, Ill.
994,931. Method of waterproofing fabrics. P. O. Keilholtz, Baltimore, Md.
994,969. Armor for tires. J. M. Barnett, Oskaloosa, Iowa.
994,974. Removable rim. E. J. Bushey, New York, N. Y.
995,010. Vehicle wheel. T. B. Jeffery, Kenosha, Wis.
995,026. Anti-skidding device for automobiles. R. A. Moore, Chicago, Ill., assignor to Moore Auto Skid Preventer Co., New York.
995,115. Resilient vehicle-tire. W. H. Clark, West Burlington, N. Y.
995,119. Tire protector. J. F. Collins, Wilmerding, Pa.
995,185. Hose connector. E. J. Rohbachter, Portland, Ore.
995,372. Tire chain. A. B. Saliger, New York, N. Y.
995,377. Cap or closure for milk or other bottles. E. D. Schmitt, Baltimore, Md., assignor to American Bottle Cap Co., Philadelphia, Pa.
995,428. Anti-slipping device for resilient tires. O. A. Trana, assignor of one-half to W. J. Westphal—both of St. Paul, Minn.

ISSUED JUNE 20, 1911.

995,583. Tire saver. L. R. Willour, assignor to The Ashland Mfg. Co., Ashland, Ohio.
995,620. Cushion tire. G. H. Matteson, assignor of one-half to J. M. Hayes—both of Toledo, Ohio.
995,732. Core for molding tires. F. S. Stiles and J. Yemiker, assignors to The Faultless Machine & Mfg. Co.—all of Akron, Ohio.
995,783. Method of marking rubber hose. C. D. Garretson, assignor to Electric Hose and Rubber Co.—both of Wilmington, Del.
995,961. Valve-base for pneumatic tires. G. W. Greene, Watertown, Mass., assignor to Shawmut Tire Co., Boston, Mass.
995,966. Hose coupling. C. Hill, Phoenix, British Columbia, Canada.
996,010. Hand stamp. H. S. Folger, Chicago, Ill.
996,025. Device for stamping or marking meat. A. D. Melvin, Washington, D. C.

Design.

41,496. Ornamental design for rubber vehicle tire. A. N. Hood, Newton, Mass., assignor to Shawmut Tire Co., Mass.

Trade Marks.

50,308. The Omo Mfg. Co., Middletown, Conn. The word *Omo*. For protective napkins for children.
52,845. Jenkins Rubber Co., Elizabeth, N. J. The word *Overland*. For rubber packing, etc.
55,478. H. H. Sheppard, Providence, R. I. The word *Comfort*, with the letters *H. H.* above line and *S* underneath in triangle. For waterproof fabric.

ISSUED JUNE 27, 1911.

996,351. Pneumatic vehicle tire. G. Lambright, Newark, N. J., assignor of one-half to F. A. Magowan, New York, N. Y.
996,358. Pneumatic pressure gage. O. Olsen, Fruitvale, Cal.
996,464. Hose holder. J. A. Darst and M. Brittain, Caldwell, Kansas.

Trade Mark.

50,987. O'Sullivan Rubber Co., Lowell, Mass. The word *O'Sullivan's* over the representation of a rubber heel. For boots, shoes, etc.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at ten cents each postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1909.

**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JUNE 8, 1911.]

3,399 (1910). Tool for applying tire covers. G. Gasch, Oberseifersdorf, near Zittau, Saxony.
*3,434 (1910). Protective covering for pneumatic tires. L. J. Tetlow, Holyoke, Mass.
3,623 (1910). Pneumatic tire with elastic filling. B. W. Crunp, Woodlands, Rickmansworth, Hertfordshire.
*3,655 (1910). Boot with elastic gore. A. Schlesinger, St. Louis, Mo.
3,656 (1910). Rubber heel pad. J. H. Pemberton, Manchester.
3,745 (1910). Pneumatic tire. H. Grosselin, Ardennes, France.
3,852 (1910). Wheel tire. F. Davies, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JUNE 14, 1911.]

3,951 (1910). Pneumatic tire. I. S. McGieham, London.
3,991 (1910). Resilient tires. W. Butterfield and T. A. Jones, Cardiff, Wales.
3,933 (1910). Rubber overshoe. R. M. Dobbie, Ayr, Scotland.
4,080 (1910). Elastic compositions. W. Plinatus, Berlin, Germany.
4,102 (1910). Wheel tires. P. Chevalier, Moulins-Sur-Alliere, France.
4,189 (1910). Isoprene; caoutchouc. F. E. Matthews and E. H. Strange, London.
4,249 (1910). Resilient wheels. A. T. Reid and J. Rickie, Glasgow, Scotland.
*4,267 (1910). Pneumatic vehicle wheel and brake. N. Schenk, St. Louis, Mo.
*4,287 (1910). Pneumatic resilient wheel. J. Neff, West Hoboken, N. J.
4,302 (1910). Infants' soothers. R. J. Shannon, London.
*4,328 (1910). Vehicle wheels. W. N. Booth, Cleveland, Ohio.
4.347 (1910). Teething pads. P. E. Woolf, Birmingham.
4,486 (1910). Hot-water bottle, etc. A. H. Cross, Wimbledom Park, London.
4,499 (1910). Vehicle wheels. J. A. Challiner and C. S. Challiner, Manchester.
4,517 (1910). Pneumatic stenciling apparatus. P. R. Grace, Shell Beach, Kent.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JUNE 21, 1911.]

*4,564 (1910). Vehicle wheels. F. H. Crabtree, Anaconda, Montana.
*4,566 (1910). Vehicle wheels. C. B. Siner, Philadelphia, Pa.
4,616 (1910). Molding India Rubber. Kay & Co. and J. H. Coffey, Bury, Lancashire.
4,620 (1910). Synthetic caoutchouc; Isoprene. F. E. Matthews and E. H. Strange, London.
4,755 (1910). Vehicle wheels. C. G. D. Webb, London.
4,838 (1910). Rubber inner sock. H. Goodings, Barnet, Hertfordshire.
4,870 (1910). Wheel tires. A. E. Wale, Elmdon, near Birmingham.
4,879 (1910). Wheel tires. A. Jacobs and W. Gummer, London.
4,904 (1910). India rubber substitute. Baron F. Zu Aichlburg, Karnten, Austria.
4,971 (1910). Wheel tires. M. Rawwolf and Lederfabrik Hirschberg, Saale, Germany.
4,972 (1910). Inflating tires. J. I. Rodway and J. Esson, Johannesburg, Transvaal, South Africa.
*5,022 (1910). Hose pipes. Revere Rubber Co., Boston, Mass.
5,103 (1910). Vehicle wheels. W. S. Boult, Wandsworth, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JUNE 28, 1911.]

5,277 (1910). Vehicle wheels. L. Mote, London.
5,332 (1910). Seamless lining for air tubes. C. J. Watts, Cleveancy, near Calne, Wiltshire.
5,494 (1910). Tire attachments for vehicle wheels. S. Balbiani, Milan, Italy.
5,525 (1910). Cow milkers. W. H. Lawrence and R. Kennedy, Glasgow, Scotland.
5,611 (1910). Tire attachments to rims. V. Place and R. Chapon, Paris.
5,697 (1910). Tobacco pipe cleaners. P. Schumacher, Gand, Belgium.
5,761 (1910). Vehicle wheels. W. Cope, Birmingham.
5,871 (1910). Infant soothers. J. Walsch and R. D. Kay, London.
5,784 (1910). Tire attachments to rims for india rubber tires. C. G. Zuche, Juben, Germany.

The New Japanese Tariff.

WITH reference to the Statistics of Japanese Imports of India Rubber, on page 306 of June, 1911, issue, the subjoined tables will be of interest, as showing the detailed application of the tariff now expiring and of that which is taking its place. The rates given for the former are the "conventional rates," applicable to importations from America, and in some cases lower than those of the old general tariff.

Owing to the classifications materially differing between the two tariffs, an exact comparison of their incidence is not practicable. Such concessions as other nations may obtain upon the rates of the new tariff, will doubtless be likewise applied to importations from the United States.

Crude rubber, it will be observed, is retained on the free list, as well as old rubber, only fit for remanufacturing.

OLD JAPANESE TARIFF ON IMPORTATIONS FROM UNITED STATES.

		Unit.	Yen.	Ad Valorem.	American Equivalent.
484.	India rubber or caoutchouc—				
	1. Crude or raw	.....	Free	....	Free
	2. Plates and sheets—				
	A. Soft—				
	a. Not exceeding 1 m. m. (.039 inch) in thickness	100 kin	87.80	....	$32.95 100 lbs.
	b. Others	100 kin	35.90	....	$13.46 100 lbs.
	B. Hard	100 kin	37.80	....	$14.13 100 lbs.
	3. Rods	.....	.....	10%	10%
	4. Tubes—				
	A. Soft	.....	.....	10%	10%
	B. Hard	.....	.....	10%	10%
	5. All other	.....	.....	10%	10%
485.	Gutta Percha—				
	1. Crude or raw	.....	Free	....	Free
	2. Plates and sheets	100 kin	39.40	....	$14.78 100 lbs.
	3. All other	.....	.....	20%	20%
486.	Caoutchouc and gutta percha manufactures, not otherwise provided for (including inner packings)—				
	1. Combs	100 kin	161.00	....	$60.38 100 lbs.
	2. Teats	100 kin	171.00	....	$64.13 100 lbs.
	3. All others	.....	.....	40%	40%
	Caoutchouc, manufactures of	.....	.....	10%	10%
487.	Dental rubber	.....	.....	20%	20%
488.	India rubber solution (including receptacles)	100 kin	18.00	....	$6.75 100 lbs.
489.	Waste or old caoutchouc (fit only for remanufacturing)	.....	Free	....	Free
490.	Hard fibers, rods, plates, sheets, tubes, etc	100 kin	10.90	....	$4.09 100 lbs.

NEW JAPANESE TARIFF (IN FORCE FROM JULY 17, 1911).

		Unit.	Yen.	Ad Valorem.	American Equivalent About
PARAGRAPH 143.	Crude india rubber, crude gutta percha and substitutes thereof.	.....	Free	....	Free
PARAGRAPH 630.	Waste or old india rubber and gutta percha, fit only for remanufacturing.	.....	Free	....	Free
PARAGRAPH 629.	MANUFACTURES OF INDIA RUBBER OR GUTTA PERCHA, NOT OTHERWISE PROVIDED FOR—				
1.	INDIA RUBBER SOLUTION (including receptacles)	100 kin	18.10	....	$6.79 100 lbs.
2.	INDIA RUBBER PASTE, RECLAIMED INDIA RUBBER AND OTHER UNVULCANIZED INDIA RUBBER	.....	.....	20%	20%
3.	DENTAL RUBBER	100 kin	75.80	....	$28.45 100 lbs.
4.	OTHER—				
	A. SOFT—				
	A 1. In lumps	.....	.....	20%	20%
	A 2. Rods and cords—				
	a. Combined with metal, tissues, yarns, threads, cords or fibers	100 kin	8.65	....	$3.24 100 lbs.
	b. Other	.....	.....	20%	20%
	A 3. Plates and sheets—				
	a. Combined with metal, tissues, yarns, threads, cords or fibers	100 kin	7.40	....	$2.78 100 lbs.
	b. Other—				
	b-1. Not exceeding 1 millimeter (.039 inch) in thickness	100 kin	95.60	....	$35.85 100 lbs.
	b-2. Other	100 kin	50.30	....	$18.86 100 lbs.
	A 4. Tubes—				
	a. Armored with metal, inside or outside	100 kin	15.30	....	$5.75 100 lbs.
	b. Other—				
	b-1. Combined with tissues, yarns, threads, cords, or fibers, or with metal insertion	100 kin	13.80	....	$5.18 100 lbs.
	b-2. Other	100 kin	93.20	....	$34.95 100 lbs.
	A 5. Belts and belting for machinery	100 kin	22.20	....	$8.33 100 lbs.
	A 6. Threads, strips, bands, rings and washers—				
	a. Combined with metal, tissues, yarns, threads, cords or fibers	100 kin	15.30	....	$5.75 100 lbs.
	b. Other	100 kin	55.60	....	$20.85 100 lbs.

	Unit.	Yen.	Ad Valorem.	American Equivalent.
A 7. Erasers	100 kin	24.90	....	$9.34 100 lbs.
A 8. Water bottles	100 kin	48.50	....	$18.19 100 lbs.
A 9. Teats (including inner packings)	100 kin	132.00	....	$49.50 100 lbs.
A 10. Mats and mattings	.....	.....	30%	30%
A 11. Other	.....	.....	40%	40%
B. OTHER—				
B 1. In lumps, bars or rods, plates and sheets	100 kin	35.40	....	$13.28 100 lbs.
B 2. Tubes	100 kin	38.90	....	$14.60 100 lbs.
B 3. Rings and washers	100 kin	43.70	....	$16.40 100 lbs.
B 4. Combs (including inner packings)	100 kin	157.00	....	$58.90 100 lbs.
B 5. Other	.....	.....	40%	40%
PARAGRAPH 355. (Extract)—				
1. BOOTS (of india rubber)	100 kin	50.00	....	$18.75 100 lbs.
2. OVERSHOES (of india rubber)	100 kin	51.60	....	$19.35 100 lbs.

ANOTHER USE FOR RUBBER TUBING.

IN large poultry establishments fowls are often fed by machinery, the forced feeding resulting in quicker and better fattening. The apparatus consists of a reservoir full of pasty food, a small force pump and a short length of rubber tubing.

FEEDING MACHINE SHOWING FOWL SWALLOWING RUBBER TUBE.

The fowl is held under one arm, its neck stretched out, the rubber tube run down as far as the crop, and a charge of food forced in. It does not hurt the bird, is profitable and is one more unusual use for rubber.

MAKING TYPEWRITER CUSHIONS.

THOSE who are familiar with the rubber cushions that cover the keys of typewriters may wonder how the letters on the rubber are applied, or they may not. Yet the manner of doing it was the result of much experimentation and was guarded by a patent. To begin with, it may be well to state that the letter is not painted on but is inlaid. The minute pieces of rubber that formed the letter could not be cemented and stuck on as they would curl and prove infinitely troublesome. The problem was finally solved by making the caps of very rich stock and semi-vulcanizing the stock from which the letter was cut. Then when it was laid upon the cap and pressure applied, it sunk into the softer stock and was then vulcanized securely in place. And that was only one of the many vexatious little problems that arose before the cushions were perfected.

The experimenters had to determine whether or not the thin rubber constituting the top of the cap had body enough to admit of the letter being pressed into it and vulcanized there. Then they had to find out by trial whether the "touch" of the top of the cap had been impaired by the application of the letter.

Next they put the keys to long and severe usage to ascertain whether the union between the letter and the key was strong enough to withstand the continuous pounding that the keys undergo in use. It was possible that under such continuous flexing the letter would come away from the key; or, at any rate, open up seams between the letter and the key so as to destroy its smooth surface and also weaken it. Few vulcanized joints between two pieces of rubber had ever before been placed

PARTS THAT MAKE UP A RUBBER KEY CUSHION.

[From left to right, first is a blank cut out of rich stock; second, letter died out of semi-vulcanized stock; third, letter placed in middle of the blank; fourth, cushion after vulcanization; fifth, cross section of key with cushion attached.]

in a position where they were called upon to withstand any usage at all analogous, and it was only when the cushions stood up to the work that the inventors knew they were really successful.

FLUCTUATIONS IN AFRICAN RUBBER EXPORTS.

BY grouping in comparative form, the principal amounts quoted by Mr. Cuthbert Christy, in his work upon the "African Rubber Industry," the fluctuations of the exports of the various African rubber producing countries may be seen. The average result would seem to be a reduction of about 45 per cent. from the highest point.

AFRICAN RUBBER EXPORTS (*pounds*).

	Earliest record.		Maximum.		Latest record.	
Gold Coast	1890	3,400,000	1898	6,000,000	1909	2,600,000
Sierra Leone	1890	1,000,000	1896	1,500,000	1909	200,000
Southern Nigeria	1893	100,000	1896	6,800,000	1908	1,400,000
Liberia	....	.....	....	.....	1908	170,000
French Ivory Coast	1899	1,600,000	1906	3,500,000	1908	2,200,000
Togoland	....	.....	....	.....	1909	336,000
Belgian Congo	1887	200,000	1901	13,000,000	1909	9,000,000
Kameruns	....	.....	....	.....	1910	3,350,000
Portuguese Angoia	....	.....	1900	6,700,000	....	.....
Uganda	1902	70,000	1908	100,000	1909	110,000

AMONG the relics recovered from the wreck of the battleship "Maine" in Havana harbor, may be mentioned a number of rubber bands. Strange to say they are found to have survived their many years' submergence in the mud and water, whereas a few weeks' seclusion in an office desk often suffices to render them hard and useless.

Review of the Crude Rubber Market.

WITH prices fluctuating slightly, but showing generally a receding tendency, in sympathy with the stagnant condition of business, the market for crude rubber is decidedly quiet. Efforts to promote an advance by those interested in higher figures, are counteracted by the large stocks on hand, which are regarded by consumers as a guarantee of still lower figures in the near future. The lack of orders at many mills leaves them at liberty to hold off for the anticipated decline.

From London an advancing market is reported, with prices steady at 4*s.* 9*d.* for Upriver fine. At this figure, large purchasers are not anxious to buy, and no business of importance was recorded.

The scrap-rubber market may be described as weak with few new orders and a downward tendency in buying and selling prices.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago, July 31—the current date:

PARA.	Aug. 1, '10.	July 1, '11.	July 31, '11.
Islands, fine, new	208@210	92@ 93	104@105
Islands, fine, old	210@212	94@ 95	...@107
Upriver, fine, new	215@...	97@ 98	114@115
Upriver, fine, old	218@...	101@102	118@119
Islands, coarse, new	95@...	58@ 59	61@ 62
Islands, coarse, old	none here	none here	none here
Upriver, coarse, new	147@...	81@ 82	95@ 96
Upriver, coarse, old	none here	83@ 84	none here
Cametá	110@...	64@ 65	67@ 68
Caucho (Peruvian) ball	147@...	80@ 81	96@ 97
Caucho (Peruvian) sheet	none here	62@ 63	none here
PLANTATION PARA.			
Fine smoked sheet	...@209	114@115	133@134
Fine pale crepe	...@202	113@114	132@133
Fine sheets and biscuits	...@196	110@111	131@132
CENTRALS.			
Esmeralda, sausage	130@...	77@ 78	84@ 85
Guayaquil, strip	110@...	none here	none here
Nicaragua, scrap	128@...	77@ 78	84@ 85
Panama	90@...	none here	none here
Mexican, scrap	127@...	75@ 76	83@ 84
Mexican, slab	none here	none here	none here
Mangaberia, sheet	none here	none here	none here
Guayule	80@...	43@ 44	43@ 44
Balata, sheet	...@...	none here	84@ 85
Balata, block	...@...	none here	63@ 65
AFRICAN.			
Lopori, ball, prime	175@...	92@ 93	106@107
Lopori, strip, prime	170@...	none here	none here
Aruwimi	160@...	87@ 88	98@ 99
Upper Congo, ball, red	none here	89@ 90	101@102
Ikelemba	none here	none here	none here
Sierra Leone, 1st quality	167@...	84@ 85	98@ 99
Massai, red	167@...	84@ 85	92@ 93
Soudan Niggers	none here	none here	91@ 92
Cameroon, ball	none here	58@ 59	65@ 66
Benguela	none here	64@ 65	70@ 71
Madagascar, pinky	none here	75@ 76	80@ 81
Accra flake	none here	25@ 26	30@ 31
EAST INDIAN.			
Assam	none here	78@ 79	81@ 82
Pontianak	6¼@ 7	6⅛@6¼	6@6¼
Borneo	none here	none here	none here

Late Pará cables quote:

Per Kilo.		Per Kilo.	
Islands, fine	4$450	Upriver, fine	4$450
Islands, coarse	2$300	Upriver, coarse	2$300
Exchange	16 5/32*d.*		

Latest Manáos advices:

Upriver, fine	6$300	Exchange	16 3/16*d.*
Upriver, coarse	4$400		

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.

	Fine and Medium.	Coarse.	Total, 1911.	Total, 1910.	Total, 1909.
Stocks, May 31...*tons*	291	60 =	351	106	101
Arrivals, June	1,051	450 =	1,501	401	1,549
Aggregating	1,342	510 =	1,852	507	1,650
Deliveries, June	1,042	437 =	1,479	346	1,258
Stocks, June 30	300	73 =	373	161	392

	PARA.			ENGLAND.		
	1911.	1910.	1909.	1911.	1910.	1909.
Stocks, May 31.....*tons*	4,205	675	555	1,925	1,550	600
Arrivals, June	1,090	945	1,040	179	662	545
Aggregating	5,295	1,620	1,595	2,104	2,212	1,145
Deliveries, June	1,510	1,320	1,350	329	752	825
Stocks, June 30	3,785	300	245	1,775	1,460	320

	1911.	1910.	1909.
World's visible supply, June 30.....*tons*	6,564	2,665	1,490
Pará receipts, July 1 to June 30	30,290	31,515	30,080
Pará receipts of caucho, same dates	7,330	7,740	8,000
Afloat from Pará to United States, June 30	226	199	88
Afloat from Pará to Europe, June 30	405	545	445

New York.

IN regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows: "There is really no change in the commercial paper situation since my report a month ago, a fairly good demand continuing for the best rubber names at 4@4½ per cent., and those not so well known 5@5½ per cent."

NEW YORK PRICES FOR JUNE (NEW RUBBER).

	1911.	1910.	1909.
Upriver, fine	$.95@1.03	$2.23@2.45	$1.35@1.51
Upriver, coarse	.81@ .85	1.50@1.63	.98@1.05
Islands, fine	.91@ .98	2.13@2.30	1.31@1.42
Islands, coarse	.58@ .63	.93@1.05	.67@ .70
Cametá	.67@ .71	1.10@1.25	.78@ .82

Rubber Receipts at Manaos.

DURING May and eleven months of the crop season, for three years (courtesy of Messrs. Scholz & Co.):

	MAY.			JULY-MAY.		
FROM—	1911.	1910.	1909.	1910-11.	1909-10.	1908-09.
Rio Purús-Acre....*tons*	357	560	218	9,875	10,041	8,629
Rio Madeira	244	131	138	3,228	3,356	3,073
Rio Juruá	365	264	251	4,163	4,349	4,217
Rio Javary-Iquitos	42	35	44	2,275	2,606	2,458
Rio Solimões	54	26	27	1,246	1,193	1,007
Rio Negro	22	4	28	513	688	583
Total	1,084	1,020	706	21,300	22,233	19,967
Caucho	569	722	586	5,100	6,931	6,406
Total	1,653	1,742	1,292	26,400	29,164	26,373
For Shipment From.						
Manáos	949	1,090	835	18,042	20,929	19,143
Pará	704	652	457	8,358	8,235	7,230
Total	1,653	1,742	1,292	26,400	29,164	26,373

Para.

R. O. AHLERS & Co. report [July 11]:

During the last few days the market suddenly went up, owing to rumors of big purchases from existing stocks being made in Europe and here by speculators.

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to June 19, 1910 and 1911. Compiled by the Ceylon Chamber of Commerce.]

	1910.	1911.
To Great Britain ..... *pounds*	533,902	1,136,954
To United States	477,737	794,989
To Belgium	24,203	152,615
To Japan	.....	20,556
To Australia	.....	16,714
To Canada	1,911	9,971
To Germany	8,121	7,585
To Italy	841	3,597
To France	.....	117
To Holland	.....	100
To India	.....	40
Total	1,046,715	2,143,238

[Same period 1909—472,342 pounds; same 1908—302,502.]

TOTAL EXPORTS FROM MALAYA.

(From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.)

FROM—	1909.	1910.	1911.
Singapore (to June 7) ...*pounds*	1,079,664	1,220,057	2,421,941
Penang (to May 27).....	1,223,361	807,433	1,764,641
Port Swettenham (to May 25)..	.....	2,622,166	4,836,703
Total	2,303,025	4,649,656	9,023,285

Liverpool.

WILLIAM WRIGHT & Co., report [July 1]:

Fine Pará.—With a considerable undeclared stock and a nervous feeling that further forced liquidation may be necessary in the near future, the market has been dull, with more or less moderate fluctuations. A considerable quantity has been shipped from here to New York, and doubtless a further quantity would be taken should prices recede below 4*s.* The crux of the situation, however, lies with the so-called syndicate's stock. Until some definite action is taken, either by actual selling or further financial support, the market is bound to continue nervous and uncertain. We can only advise manufacturers to carefully watch the course of events, and should any decided decline occur on the July tenders, to take some advantage of same. Closing value: Upriver 4*s* 0½*d.* [=98 cents]. Island 3*s.* 11½*d.* **[=96 cents].**

African Rubbers.

NEW YORK STOCKS (IN TONS).

June 1, 1910.....	90	January 1, 1911.....	115
July 1	120	February 1	115
August 1	250	March 1	111
September 1	300	April 1	98
October 1	375	May 1	98
November 1	100	June 1	90
December 1	140	July 1	90

IMPORTS FROM PARA AT NEW YORK.

The Figures Indicate Weight in Pounds.

JULY 5.—By the steamer *Hubert*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold.....	121,900	31,800	137,200	64,700=	355,600
New York Commercial Co..	38,400	7,300	20,900	40,400=	107,000
De Lagotellerie & Co.....	10,000	1,400	20,500	.....=	31,900
Total	170,300	40,500	178,600	105,100=	494,500

JULY 6.—By the steamer *Minas Geraes*, from Pará:

Poel & Arnold.....	41,000	5,700	19,100	28,200=	94,000
Hagemeyer & Brunn.....	9,300	700	7,200	.....=	17,200
Total	50,300	6,400	26,300	28,200=	111,200

JULY 17.—By the steamer *Amazonense*, from Manáos and Pará:

Poel & Arnold.....	148,200	32,100	118,700	70,500=	369,500
New York Commercial Co..	36,800	13,200	37,700	122,700=	210,400
De Lagotellerie & Co.....	19,300	3,600	16,500	.....=	39,400
A. T. Morse & Co.....	27,600	4,700	5,200	500=	38,000
Hagemeyer & Brunn.....	.....	.....	10,600	.....=	10,600
General Rubber Co.....	.....	.....	.....	6,800=	6,800
G. Amsinck & Co.....	.....	.....	.....	3,600=	3,600
Total	231,900	53,600	188,700	204,100=	678,300

JULY 24.—By the steamer *Cearense*, from Manáos and Pará:

Poel & Arnold.....	147,600	27,300	138,900	32,000=	345,800
New York Commercial Co..	26,300	10,500	26,300	78,400=	141,500
A. T. Morse & Co.....	31,000	6,400	49,000	.....=	86,400
De Lagotellerie & Co.....	10,700	4,600	33,100	.....=	48,400
Hagemeyer & Brunn.....	3,600	.....	.....	.....=	3,600
Total	219,200	48,800	247,300	110,400=	625,700

PARA RUBBER VIA EUROPE.

POUNDS.

JUNE 24.—By the *Campania*=Liverpool:

N. Y. Commercial Co. (Fine)..	72,00	
Poel & Arnold (Coarse).....	20,000	
A. T. Morse & Co. (Caucho)..	1,500	93,500

JUNE 26.—By the *Baltic*=Liverpool:

Wallace L. Gough Co. (Fine)..	10,00	
A. W. Brunn Co. (Coarse)....	2,500	12,500

JUNE 28.—By the *Coppename*=Bolivar:

American Trading Co. (Fine)..	11,500	
American Trading Co. (Coarse)	11,000	22,500

JUNE 28.—By the *Cleveland*=Hamburg:

Wallace L. Gough Co. (Fine)..	4,500	
A. T. Morse Co. (Caucho)....	22,500	27,000

JUNE 28.—By the *Caronia*=Liverpool:

N. Y. Commercial Co. (Fine)..	38,000	
Poel & Arnold (Coarse).....	35,000	73,000

JUNE 30.—By the *Mauretania*=Liverpool:

A. T. Morse & Co. (Fine)....	22,500	
Raw Products Co. (Coarse)....	56,000	
Robinson & Co. (Coarse).....	22,500	
Henderson & Korn (Coarse)..	11,500	
A. T. Morse & Co. (Caucho)..	22,500	
Robinson & Co., (Coarse)....	15,000	150,000

JULY 3.—By the *Pennsylvania*=Hamburg:

Wallace L. Gough Co. (Fine)..	19,000	
Raw Products Co. (Coarse)....	4,500	23,500

JULY 3.—By the *Crown of Granada*=Bolivar:

Iglesias Lobo & Co. (Fine)....	24,000	
Iglesias Lobo & Co. (Coarse)..	9,000	
General Exp. Comm. Co. (Fine)	7,000	
General Exp. Comm. Co. (Coarse)	15,000	55,000

JULY 3.—By the *Prinz Sigismund*=Colombia:

A. Jaranillo & Co.....	7,000	
Mecke & Co.....	2,000	
A. Held	2,000	
Caballero & Blanco.....	1,500	
G. Amsinck & Co.....	1,000	13,500

JULY 3.—By the *Esperanza*=Frontera:

H. Marquardt & Co.....	6,000	
A. Klipstein & Co.....	2,500	
E. Steiger & Co.....	2,000	
H. Kluge & Co.....	1,500	
W. L. Wadleigh.....	1,000	13,000

JULY 3.—By the *El Cid*=Galveston:

Continental-Mexican Rubber Co.....		*135,000

JULY 5.—By the *Verdi*=Bahia:

J. H. Rossbach & Bros.....	22,500	
Poel & Arnold	11,000	33,500

JULY 5.—By the *Clyde*=Colombia:

G. Amsinck & Co.....	2,500	
General Rubber Co.....	2,000	
J. Sambrada & Co.....	1,500	
Isaac Brandon & Bros.....	1,000	
Wessels, Kulenkampff & Co...	1,000	
Agesias & Martinez.....	1,000	9,000

JULY 6.—By *El Norte*=Galveston:

Continental-Mexican Rubber Co.....		*75,000

JULY 6.—By the *Allianca*=Colon:

G. Amsinck & Co.....	7,500	
Lawrence Johnson & Co.....	4,500	
Isaac Brandon & Bros.....	3,000	
Gillespie Bros. & Co.....	2,000	
Charles E. Griffin.....	1,500	18,500

JULY 8.—By the *Antilles*=Tampico:

N. Y. Commercial Co.....	*110,000	
Ed. Maurer	*55,000	*165,000

JULY 11.—By the *Asiatic*=Bahia:

Adolph Hirsch & Co.....		47,000

JULY 12.—By the *Prinz Joachim*=Colon:

Issac Brandon & Bros.....	9,000	
G. Amsinck & Co.....	2,000	
August A. Lindo.....	1,500	
Caballero & Blanco.....	1,000	
George A. Alden & Co.....	1,000	14,500

JULY 11.—By the *Saramacca*=Bolivar:

General Exp. Comm. Co. (Fine)	40,000	
General Exp. Comm. Co. (Coarse)	10,000	
American Trading Co. (Fine)..	1,500	51,000

JULY 12.—By the *Prinz Joachim*=Mollendo:

F. Rosenstein & Co. (Fine).....		9,000

JULY 12.—By the *Oceanic*=London:

Poel & Arnold (Coarse).....		22,500

JULY 17.—By the *President Grant*=Hamburg:

A. T. Morse & Co. (Fine)....	33,500	
N. Y. Commercial Co. (Fine)..	11,000	44,500

JULY 17.—By the *Cedric*=Liverpool:

A. T. Morse & Co. (Fine)....	40,000	
N. Y. Commercial Co. (Fine)..	27,000	
Robinson & Co. (Fine).....	18,000	
Henderson & Korn (Coarse)..	22,500	
General Rubber Co. (Fine)....	34,000	
Raw Products Co. (Coarse)....	11,500	
Muller, Schall & Co. (Coarse).	4,500	
A. T. Morse & Co. (Caucho)..	22,500	
Henderson & Korn (Caucho)..	22,500	
Wallace L. Gough Co. (Fine)..	3,500	206,000

JULY 21.—By the *Atrato*=Mollendo:

General Rubber Co. (Fine)....	6,000	
A. T. Morse & Co. (Caucho)..	8,000	14,000

JULY 22.—By the *Campania*=Liverpool:

General Rubber Co. (Fine)....	90,000	
Poel & Arnold (Fine).....	45,000	
Robinson & Co. (Fine).....	5,500	
Henry A. Gould Co. (Fine)....	4,500	
Poel & Arnold (Caucho).....	15,500	160,500

JULY 24.—By the *Baltic*=Liverpool.

Henderson & Korn (Caucho)..	56,000	
N. Y. Commercial Co. (Fine)..	5,000	
Raw Products Co. (Coarse)....	3,500	64,500

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

POUNDS.

JUNE 26.—By the *Advance*=Colon:

G. Amsinck & Co.....	11,500	
L. Johnson & Co.....	1,500	
H. Mann & Co.....	1,000	14,000

JUNE 26.—By the *Mexico*=Frontera

Lawrence Import Co.	3,500	
Harburger & Stack	2,000	
Strube & Ultze	1,500	7,000

JUNE 27.—By the *Camaguey*=Tampico:

Ed. Maurer	*45,000	
N. Y. Commercial Co.	*34,000	
Poel & Arnold	*34,000	
For Antwerp	*6,000	*119,000

JUNE 28.—By the *Prinz August Wilhelm*=Colon:

G. Amsinck & Co.	3,500	
A. Santos & Co.	2,500	
A. Rosenthal & Sons	2,000	
Suzarte & Whitney	1,000	
Pablo Calvert & Co.	1,000	
Isaac Brandon & Bros.	1,000	11,000

JUNE 30.—By the *Colon*=Colon:

G. Amsinck & Co.	1,500	
Pablo Calvert & Co.	1,000	
Dumarest Bros. & Co.	1,000	
American Trading Co.	1,000	4,500

JULY 1.—By the *Matanzas*=Tampico:

N. Y. Commercial Co.	*100,000	
Ed. Maurer	*65,000	
For Antwerp	*5,000	*170,000

JULY 13.—By *El Valle*=Galveston:

Continental-Mexican Rubber Co.		*85,000

JULY 15.—By the *Monterey*=Vera Cruz:

Lawrence Import Co.	2,500	
General Export Co.	2,000	
H. Marquardt & Co.	1,500	6,000

JULY 15.—By *El Mundo*=Galveston:

Continental-Mexican Rubber Co.	*80,000	
Charles T. Wilson	*13,500	*93,500

JULY 15.—By the *Proteus*=New Orleans:

A. T. Morse & Co.	2,500	
Manhattan Rubber Mfg. Co.	1,500	
Eggers & Heinlein	1,000	5,000

JULY 17.—By *El Occidente*=Galveston:

Continental-Mexican Rubber Co.		*75,000

JULY 18.—By the *Momus*=New Orleans:

George A. Alden & Co.	3,500	
Eggers & Heinlein	2,500	6,000

JULY 19.—By the *Advance*=Colon:

G. Amsinck & Co.	8,000	
Dumarest Bros. & Co.	3,000	
Piza, Nephews & Co.	3,000	
A. Jaramillo & Co.	3,000	
Pablo Calvert & Co.	2,000	
United Fruit Co.	2,000	
Mecke & Co.	1,000	
Isaac Brandon & Bros.	1,000	23,000

JULY 20.—By the *Romney*=Bahia:

Poel & Arnold		11,000

JULY 21.—By the *Atrato*=Colombia:

J. Sambrada & Co.	6,000	
Suzarte & Whitney	2,500	
Roldau & Van Sickle	1,500	
Caballero & Blanco	1,500	
A. Held	1,500	
Isaac Brandon & Bros.	1,000	14,000

JULY 22.—By the *Yumuri*=Tampico.

Ed. Maurer	*67,000	
J. W. Wilson & Co.	*15,000	
For Europe	*20,000	*102,000

JULY 22.—By the *Mexico*=Vera Cruz:

American Trading Co.	1,500	
International Products Co.	1,000	
A. Klipstein & Co.	1,000	
V. Cairro & Co.	1,000	4,500

JULY 22.—By *El Oriente*=Galveston:

Continental-Mexican Rubber Co.	*75,000	
Charles T. Wilson	*20,000	*95,000

JULY 24.—By the *Vigilancia*=Tampico:

Ed. Maurer	*100,000	
Poel & Arnold	*22,500	
For Europe	*85,000	*207,500

JULY 24.—By the *Tennyson*=Bahia:

A. Castra & Co.	45,000	
Poel & Arnold	22,500	67,500

JULY 25.—By the *Colon*=Colon:

G. Amsinck & Co.	15,000	
Charles E. Griffin	3,000	
Isaac Brandon & Bros.	1,500	
Jose Julia & Co.	1,000	20,500

AFRICAN.

		POUNDS.
JUNE 26.—By the *Baltic*=Liverpool:		
James T. Johnstone		7,000
JUNE 27.—By the *Minnewaska*=London:		
George A. Alden & Co.		22,500
JUNE 28.—By the *Cleveland*=Hamburg:		
A. T. Morse & Co.	34,000	
Poel & Arnold	11,000	
Robert Badenhop	4,500	
Rubber Trading Co.	3,000	
James T. Johnstone	2,500	55,000
JUNE 28.—By the *Caronia*=Liverpool:		
Rubber Trading Co.	11,000	
Robinson & Co.	7,000	
Poel & Arnold	5,500	
Robert Badenhop	11,000	34,500
JUNE 29.—By the *St. Paul*=London:		
General Rubber Co.	9,000	
Muller, Schall & Co.	15,000	
Rubber Trading Co.	7,000	31,000
JUNE 30.—By the *Finland*=Antwerp:		
A. T. Morse & Co.	30,000	
Muller, Schall & Co.	9,000	39,000
JUNE 30.—By the *Mauretania*=Liverpool:		
George A. Alden & Co.	45,000	
General Rubber Co.	5,000	50,000
JULY 2.—By the *Pennsylvania*=Liverpool:		
Robert Badenhop		4,100
JULY 3.—By the *Celtic*=Liverpool:		
James T. Johnstone		9,000
JULY 5.—By the *Gothland*=Antwerp:		
A. T. Morse & Co.	65,000	
Poel & Arnold	22,500	
Robinson & Co.	20,000	
Rubber Trading Co.	11,000	118,500
JULY 8.—By the *Amerika*=Hamburg:		
George A. Alden & Co.	56,000	
A. T. Morse & Co.	22,500	
Robert Badenhop	11,500	
Wallace L. Gough Co.	6,500	
Poel & Arnold	8,000	
Rubber Trading Co.	5,000	109,500
JULY 10.—By the *Lapland*=Antwerp:		
A. T. Morse & Co.	45,000	
Wallace L. Gough Co.	22,500	
Robert Badenhop	11,600	
Poel & Arnold	13,500	
William H. Stiles	4,500	97,100
JULY 10.—By the *Schwarzburg*=Hamburg:		
Wallace L. Gough Co.	22,500	
George A. Alden & Co.	22,500	
Robert Badenhop	12,000	57,000
JULY 12.—By the *Oceanic*=London:		
Robinson & Co.		11,500
JULY 15.—By the *Florida*=Havre:		
A. T. Morse & Co.		100,000
JULY 17.—By the *President Grant*=Hamburg:		
Poel & Arnold	7,000	
General Rubber Co.	7,000	
Robert Badenhop	1,000	15,000
JULY 17.—By the *New York*=London:		
A. T. Morse & Co.	56,000	
Muller, Schall & Co.	7,000	63,000
JULY 17.—By the *Cedric*=Liverpool:		
Geo. A. Alden & Co.	45,000	
J. T. Johnstone	22,500	
General Rubber Co.	5,500	
Rubber Trading Co.	7,000	
W. L. Gough Co.	4,500	84,500
JULY 18.—By the *Kroonland*=Antwerp:		
A. T. Morse & Co.	7,000	
William H. Stiles	6,500	
A. W. Brunn	5,000	18,500
JULY 22.—By the *Campania*=Liverpool:		
Poel & Arnold		7,000
JULY 22.—By the *St. Paul*=London:		
Robert Badenhop		3,000
JULY 24.—By the *Baltic*=Liverpool:		
Poel & Arnold	22,500	
J. T. Johnstone	5,500	
A. W. Brunn	3,500	31,500
JULY 24.—By the *St. Paul*=London:		
George A. Alden & Co.	4,500	
A. T. Morse & Co.	25,000	
Rubber Trading Co.	3,500	33,000

JULY 24.—By the *President Lincoln*=Hamburg:

A. T. Morse & Co.	40,000	
George A. Alden & Co.	35,000	
Poel & Arnold	34,000	
Wallace L. Gough Co.	20,000	
Robert Badenhop	15,000	
Rubber Trading Co.	5,500	
General Rubber Co.	3,500	
James T. Johnstone	3,000	156,000

EAST INDIAN.

[*Denotes plantation rubber.]

		POUNDS.
JUNE 24.—By the *Almora*=Colombo:		
A. T. Morse & Co.	13,500	
Thomsen & Co.	4,500	
James T. Johnstone	1,500	19,500
JUNE 27.—By the *Minnehaha*=London:		
Poel & Arnold	30,000	
Ed. Maurer	13,500	
New York Commercial Co.	7,000	
Earle Brothers	3,500	
Raw Products Co.	4,500	
Wallace L. Gough Co.	5,500	64,000
JUNE 28.—By the *Caronia*=Liverpool:		
William H. Stiles	13,500	
New York Commercial Co.	16,000	29,500
JUNE 29.—By the *St. Paul*=London:		
Poel & Arnold	30,000	
New York Commercial Co.	9,000	
Ed. Maurer	20,000	59,000
JUNE 30.—By the *Finland*=Antwerp:		
A. T. Morse & Co.		45,000
JULY 3.—By the *Philadelphia*=London:		
Poel & Arnold	33,500	
Henderson & Korn	9,000	
W. H. Stiles	2,500	
Poel & Arnold	8,000	53,000
JULY 5.—By the *Trifels*=Colombo:		
A. T. Morse & Co.	40,000	
New York Commercial Co.	22,500	
Poel & Arnold	10,000	72,500
JULY 5.—By the *Gothland*=Antwerp:		
A. T. Morse & Co.	50,000	
Rubber Trading Co.	5,000	55,000
JULY 7.—By the *Adriatic*=London:		
A. T. Morse & Co.	13,500	
Poel & Arnold	11,000	
New York Commercial Co.	8,000	32,500
JULY 7.—By the *Minneapolis*=London:		
New York Commercial Co.	30,000	
A. T. Morse & Co.	7,000	
James T. Johnstone	5,500	
Ed Maurer	5,000	
Poel & Arnold	5,500	53,000
JULY 8.—By the *Kennebec*=Singapore:		
Ed Maurer	7,000	
O. Isenstein Co.	2,500	
Manhattan Rubber Mfg. Co.	13,500	
Haebler & Co.	22,500	
Ed Maurer	22,500	68,000
JULY 10.—By the *St. Louis*=London:		
New York Commercial Co.		11,000
JULY 10.—By the *Lapland*=Antwerp:		
A. T. Morse & Co.		38,000
JULY 12.—By the *Oceanic*=London:		
Poel & Arnold		25,000
JULY 14.—By the *Minnetonka*=London:		
A. T. Morse & Co.	67,000	
Poel & Arnold	25,000	
Ed Maurer	11,500	
Robinson & Co.	9,000	
James T. Johnstone	3,500	116,000
JULY 17.—By the *Cedric*=Liverpool:		
William H. Stiles	22,500	
Ed Maurer	22,500	45,000
JULY 17.—By the *New York*=London:		
New York Commercial Co.	40,000	
Poel & Arnold	22,500	62,500
JULY 19.—By the *Minnehaha*=London:		
Poel & Arnold	30,000	
James T. Johnstone	11,000	
A. T. Morse & Co.	6,000	
Robinson & Co.	7,000	54,000
JULY 19.—By the *Olympic*=London:		
New York Commercial Co.	30,000	
Poel & Arnold	30,000	
Rubber Trading Co.	3,500	63,500
JULY 22.—By the *Campania*=Liverpool:		
William H. Stiles		11,500
JULY 24.—By the *Minnewaska*=London:		
A. T. Morse & Co.	37,000	
Wallace L. Gough Co.	5,500	42,500

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Venezuelan Block Balata

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JULY 24.—By the *St. Paul*=London:

Poel & Arnold	22,500	
New York Commercial Co.	13,500	
Poel & Arnold	15,000	51,000

JULY 24.—By the *Muncaster Castle*=Singapore:

Ed Maurer	25,000	
Poel & Arnold	22,500	
L. Littlejohn & Co.	5,500	
Wallace L. Gough Co.	4,500	57,500

JULY 24.—By the *Royal Prince*=Colombo:

A. T. Morse & Co.	40,000	
New York Commercial Co.	22,500	
Thomsen & Co.	7,000	
James T. Johnstone	4,500	
Poel & Arnold	4,500	78,500

GUTTA-JELUTONG.

JULY 5.—By the *Montrose*=Singapore:

L. Littlejohn & Co.	600,000	
Haebler & Co.	450,000	
Wallace L. Gough Co.	250,000	
George A. Alden & Co.	120,000	
A. W. Brunn	25,000	1,445,000

JULY 8.—By the *Kennebec*=Singapore:

L. Littlejohn & Co.	350,000	
Haebler & Co.	225,000	
Wallace L. Gough Co.	110,000	
George A. Alden & Co.	50,000	
Continental Rubber Co.	8,000	743,000

JULY 24.—By the *Muncaster Castle*=Singapore:

L. Littlejohn & Co.	350,000	
Wallace L. Gough Co.	125,000	
Haebler & Co.	100,000	575,000

GUTTA-PERCHA.

JULY 5.—By the *Montrose*=Singapore:

George A. Alden & Co.		22,500

JULY 8.—By the *Kennebec*=Singapore:

Haebler & Co.	22,500	
Poel & Arnold	11,000	33,500

JULY 8.—By the *Amerika*=Hamburg:

Robert Soltau & Co.		15,000

JULY 19.—By the *Olympic*=London:

Wallace L. Gough Co.		20,000

BALATA.

JUNE 27.—By the *Minnewaska*=London:

R. & J. Dick, Limited		9,000

JUNE 28.—By the *Coppename*=Trinidad:

Ed. Maurer	5,000	
Suzarte & Whitney	6,000	11,000

JULY 3.—By the *Court Grenada*=Trinidad:

Schutte, Bunemann & Co.	17,500	
Ed. Maurer	13,000	
Middleton & Co.	5,000	35,500

JULY 11.—By the *Saramaca*=Trinidad:

G. Amsinck & Co.	11,500	
Middleton & Co.	8,000	
Scholtz & Marturet	5,500	
Ed. Maurer	3,500	28,500

JULY 18.—By the *Marowijne*=Paramaribo:

Ed. Maurer	15,000	
Middleton & Co.	9,000	24,000

JULY 21.—By the *Goeredyk*=Rotterdam:

Earle Brothers		11,500

JULY 21.—By the *Navawe*=Trinidad:

American Trading Co.	5,500	
George A. Alden & Co.	2,500	8,000

BOSTON ARRIVALS.

JUNE 2.—By the *Ghasee*=Singapore:

L. Littlejohn & Co. (Jelutong)	210,000

JUNE 6.—By the *Canadian*=Liverpool:

Wallace L. Gough Co. (Fine)	6,500

JUNE 10.—By the *Seneca*=Singapore:

State Rubber Co. (Ceylon)	4,500

JUNE 13.—By the *Seneca*=Singapore:

State Rubber Co. (Jelutong)	107,000

JUNE 27.—By the *Winifredan*=Liverpool:

George A. Alden & Co. (African)	5,600

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK.—JUNE.

Imports:	Pounds.	Value.
India-rubber	6,283,783	$5,477,466
Balata	134,456	106,084
Gutta-percha	311,314	52,529
Gutta-Jelutong (Pontianak)	6,574,856	371,094
Guayule	373,922	147,478
Total	13,678,331	$6,154,651
Exports:		
India-rubber	61,156	$44,610
Balata	11,226	9,076
Gutta-percha	4,951	427
Guayule	5,057	1,914
Reclaimed rubber	43,403	6,546
Rubber scrap, imported	1,438,666	$119,109
Rubber scrap, exported	365,441	56,063

PARA EXPORTS OF INDIA-RUBBER, MAY, 1911 (IN KILOGRAMS).

EXPORTERS.	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Total.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	Total.	TOTAL.
Gruner & Co.	66,337	25,538	187,611	16,202	295,688	211,543	32,740	24,710	156,380	425,373	721,061
Adelbert H. Alden, Ltd.	62,787	10,517	53,946	28,518	155,768	2,777	511	11,022	5,610	19,920	175,688
R. O. Ahlers & Co.	38	.....	180	2,648	2,866	50,947	.....	11,984	12,699	75,630	78,496
De Lagotellerie & Co.	19,380	5,440	31,680	.....	56,500	21,420	.....	.....	.....	21,420	77,920
Suarez Hermanos & Co.	.....	.....	.....	.....	.....	31,951	1,197	10,754	21,329	65,231	65,231
Pires Teixeira & Co.	20,400	170	9,240	.....	29,810	13,040	.....	16,120	.....	29,160	58,970
The Alves Braga Rubber Estates and Trading Co., Ltd.	26,762	595	362	60	27,779	.....	.....	.....	.....	.....	27,779
A. de la Rivière & Co.	.....	.....	2,310	.....	2,310	12,799	680	5,563	2,016	21,058	23,368
Gordon & Co.	.....	.....	.....	.....	.....	12,352	1,087	356	3,603	17,398	17,398
J. Marques	81	60	5,386	123	5,650	.....	.....	.....	.....	.....	5,650
Guilherme Aug. de Miranda Filho.	.....	.....	.....	.....	.....	3,060	.....	660	.....	3,720	3,720
Sundries	2,720	170	28,710	.....	31,600	8,500	1,020	760	.....	10,180	41,780
Itacoatiara, direct	.....	.....	.....	.....	.....	800	160	640	160	1,760	1,760
Manáos, direct	158,874	29,421	115,363	103,375	407,033	370,030	76,579	87,289	269,618	803,516	1,210,549
Iquitos, direct	.....	.....	.....	.....	.....	53,924	3,054	15,951	160,483	233,412	233,412
Total, May, 1911	357,379	71,911	434,788	150,926	1,015,004	793,143	117,028	185,709	631,898	1,727,778	2,742,782
Total, April, 1911	389,417	99,628	352,154	287,232	1,128,431	823,960	114,300	185,785	589,224	1,713,269	2,841,700
Total, March, 1911	268,926	71,692	283,502	76,499	700,619	1,349,885	176,348	399,138	551,188	2,476,559	3,177,178
Total, February, 1911	462,123	111,594	454,235	113,921	1,141,873	1,477,804	201,533	330,181	608,595	2,618,113	3,759,986
Total, January, 1911	728,494	157,522	563,542	245,226	1,694,784	884,184	117,265	123,838	287,438	1,413,025	3,107,809

PARA AND MANAOS INDIA-RUBBER EXPORTS FIRST HALF OF 1910 (IN KILOGRAMS.)

EXPORTERS.	UNITED STATES. Fine.	Medium.	Coarse.	Caucho.	Total.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	Total.	TOTAL.
Gruner & Co.—Pará, Dusendschön, Zarges & Co.—Manáos	1,070,288	320,479	1,107,435	434,694	2,932,896	1,881,214	196,955	294,819	1,238,265	3,611,253	6,720,149
Ad. H. Alden, Ltd.—Pará-Manáos	502,039	112,463	357,440	282,689	1,254,631	511,867	157,178	177,460	228,278	1,074,783	2,373,414
Scholz, Hartje & Co.—Pará, Scholz & Co.—Manáos	327,062	53,971	160,119	183,064	723,216	623,762	103,540	181,823	408,400	1,317,525	2,040,741
Gordon & Co.—Pará-Manáos	76,104	16,900	20,476	6,374	119,854	568,670	121,095	195,779	356,854	1,242,398	1,386,252
E. Pinto Alves & Co.—Pará	201,646	10,076	420,707	40,197	672,626	302,813	36,569	59,688	62,373	461,443	1,134,069
J. Marques—Pará-Manáos	128,210	44,964	56,555	6,830	236,559	512,177	163,563	102,633	18,472	736,845	973,404
Suarez Hermanos & Co., Ltd.—Pará	.....	.....	.....	.....	.....	558,299	8,297	51,696	153,165	771,457	771,457
R. O. Ahlers & Co.—Pará, Ahlers Co.—Manáos	15,180	.....	8,352	69,111	92,643	147,517	.....	29,668	49,267	226,452	325,095
De Lagotellerie & Co.—Pará	42,840	11,560	93,060	.....	147,460	44,030	340	5,610	58,740	108,720	286,180
Pires Teixeira & Co.—Pará	51,850	510	62,040	330	114,730	94,811	315	43,395	154	138,675	253,405
Mello & Co.—Pará-Manáos	.....	.....	10,162	1,125	11,287	95,310	24,497	7,953	29,187	156,947	168,234
The Alves Braga Rubber Estates & Trading Co., Ltd.—Pará	75,738	8,376	12,235	733	97,082	.....	.....	.....	.....	.....	97,082
J. G. Araujo—Manáos	.....	.....	.....	.....	.....	39,190	8,003	29,549	1,066	77,808	77,808
A. de la Rivière & Co.—Pará	4,590	510	3,960	.....	9,060	39,209	3,152	23,574	2,016	67,951	77,011
E. Kingdom & Co.—Manáos	.....	.....	.....	.....	.....	21,600	.....	8,560	3,920	34,080	34,080
Guilherme Augusto de Miranda Filho—Pará	15,390	2,228	624	.....	18,242	5,086	690	2,090	129	7,995	26,237
S. A. Armazens Andresen—Manáos	.....	.....	.....	.....	.....	12,405	2,286	8,372	.....	23,063	23,063
Gunzburger & Co.—Manáos	288	190	584	3,645	4,707	2,504	208	322	.....	3,034	7,741
Braga Sobrinho & Co.—Pará	.....	.....	.....	.....	.....	4,305	437	296	.....	5,038	5,038
Sundries	2,720	170	32,670	.....	35,560	103,281	8,893	51,325	75,559	239,058	274,618
Itacoatiara, direct	.....	.....	.....	.....	.....	26,180	3,007	19,027	1,673	49,887	49,887
Iquitos, direct	71,301	8,740	29,716	16,378	126,135	284,921	24,401	105,789	499,982	915,093	1,041,228
Stock in 1st hands—Pará	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,343,000
Stock held by Syndicate J. Marquez	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,760,000
On board S. S. *Amazonense*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	140,000
Total	2,585,246	590,137	2,376,135	1,045,170	6,596,688	5,879,151	803,426	1,399,428	3,187,500	11,269,505	24,389,193

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Antwerp.

RUBBER STATISTICS FOR JUNE.

DETAIL.	1911.	1910.	1909.	1908.	1907.
Stocks, May 31..*kilos*	614,010	543,863	689,238	771,577	752,914
Arrivals in June....	426,992	425,601	430,074	461,063	296,779
Congo sorts	382,972	356,288	273,079	397,745	256,350
Other sorts	44,020	69,313	156,995	63,318	40,429
Aggregating	1,041,002	969,464	1,119,312	1,232,640	1,049,693
Sales in June.....	267,025	508,947	642,892	547,774	377,900
Stocks, June 30	733,977	460,517	476,420	684,866	671,793
Arrivals since Jan. 1.	2,221,022	2,085,208	2,403,504	2,605,825	2,578,734
Congo sorts	1,642,593	1,655,626	1,716,209	2,257,536	2,194,578
Other sorts	578,429	429,582	687,295	348,289	384,156
Sales since Jan. 1....	2,035,257	2,166,203	2,522,819	2,927,853	2,565,125

RUBBER ARRIVALS FROM THE CONGO.

JUNE 22.—By the steamer *Leopoldville:*

Bunge & Co.	(Société Générale Africaine) *kilos*	72,700	
Do	(Chemins de fer Grands Lacs)	4,000	
Do	(Societe Abir)	750	
Do	(Belgika)	800	
Do	(Comptoir Commercial Congolais)	32,500	
Société Coloniale Anversoise	(Cie. du Lomami)	4,000	
Do	(Cie. du Kasai)	71,500	
L. & W. Van de Velde		12,000	
Charles Dethier	(Société Comm. and Miniére du Congo)	1,150	
Congo Trading Co.		1,400	241,600

JULY 13.—By the steamer *Bruxellesvilles*

Bunge & Co.	(Société Générale Africaine) *kilos*	108,700	
Do	(Chemins de fer Grands Lacs)	5,100	
Société Coloniale Anversoise	(Belge du Haut Congo)	1,600	
Do	(Cie. franc du Haut Congo)	8,000	
Do	(Cie. du Lomami)	10,200	
L. & W. Van de Velde	(Cie. du Kasai)	88,500	
Do	(Société Com. and Financ. Africaine)	8,500	
Do		6,500	237,100

Amsterdam.

F. JOOSTEN reports [July 7]:

The market remained firm, but no business took place as owners are asking above market value.

Fresh arrivals could not be discharged, owing to the strike and consequently the quantities offered in this tender sale of 21st instant is smaller than it ought to have been.

F. JOOSTEN reports [July 21]:

Today's tender sale met with strong competition again, especially for the *Hevea* lots, for which high prices were paid, all above foreign parity, and in some instances as much as fully 10 per cent. above valuations.

But of the total of about 19,800 kiles, 10,000 kiles were sold, whilst the unsold lots mostly were held at prohibitive prices, owners anticipating an advance.

Rubber Scrap Prices.

LATE NEW YORK quotations—prices paid by consumers for carload lots, per pound—are practically unchanged.

	July 1.	August 1.
Old rubber boots and shoes—domestic	8⅞@ 9	9 @ 9⅛
Old rubber boots and shoes—foreign.	9 @ 9¼	9 @ 9⅛
Pneumatic bicycle tires	4½@ 4¾	4½@ 4¾
Automobile tires	8⅜@ 8½	8⅜@ 8½
Solid rubber wagon and carriage tires	9¼@ 9¾	9¼@ 9¾
White trimmed rubber	11 @11½	11 @11½
Heavy black rubber	4¾@ 5	4¾@ 5
Air brake hose	4½@ 4¾	4½@ 4¾
Garden hose	1¾@ 1⅞	1¾@ 1⅞
Fire and large hose	2⅜@ 2⅝	2⅜@ 2⅝
Matting	⅞@ 1	⅞@ 1

GUTTA-PERCHA EXPORTS FROM THE PHILIPPINE ISLANDS.

OFFICIAL trade returns of the Bureau of Customs show the following exports of gutta-percha from the Philippine Islands during the fiscal years 1905 to 1910, inclusive:

Fiscal Year	Quantity Kilos	Value U. S. Currency
1905	6,568	$ 1,381
1906	67,596	18,123
1907	120,404	32,125
1908	88,438	14,981
1909	41,090	9,147
1910	95,082	31,903